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The influence of educational technology on affective education in maritime education and training (MET)

Rani Unnab Aziz Khan
World Maritime University

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World Maritime University
Malmo, Sweden

The Influence of educational technology on affective education in Maritime Education and Training (MET)

By

Rani Unnab Aziz Khan
Pakistan

A dissertation submitted to the World Maritime University in partial fulfillment of the requirements for the award of the degree of

MASTER OF SCIENCE
IN
MARITIME AFFAIRS
(MARITIME EDUCATION AND TRAINING)
2014

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DECLARATION

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred to me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

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I would like to express my sincere appreciation to my family for their continued encouragement and blessings to me and my work. I would like also to express my gratitude to International Transport workers’ Federation (ITF) and World Maritime University (WMU) for providing me opportunity to study Maritime Affairs.

It is with the deepest sense of gratitude that I express my sincere thanks to all my professors and staff members who guided me their encouragement is the source of motivation for me to work harder and better

I further wish to express my deepest appreciation to all those who help me in my research work and guided me to complete my work in the right way.
Title of the dissertation: The influence of educational technology on affective education in Maritime Education and Training

Degree: MSc

This dissertation is a study to achieve a better understanding of educational technology and affective education. This study focuses on influence of educational technology on affective education in maritime education and training. In this research, participants were students, professors and officials of maritime industry. The research respondents were in World Maritime University, Malmo, Sweden and Maritime Institute Willem Barentsz (MIWB) West-Terschelling, The Netherlands. The research presents a small scale qualitative and quantitative study on the importance of affective education in METIs specifically, the role of educational technology in affective education and future’s perspective for improvement in MET. It is hoped that finding can enhance the importance of affective education in maritime education and training institutions.
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LISTS OF ABBREVIATIONS

FoC: Flags of Convenience
AD: Affective domain
ITF: The international Transport Federation
SEKO: The Union of Service Communication Employees
MET: Maritime Education and Training
METIs: Maritime Education and Training Institutions
QSS: Quality Standard System
ET: Educational Technology
AE: Affective Education
ICT: Information Communication and Technology
MK: Metacognitive Knowledge
CBT: Computer Based Teaching
KM: Knowledge Management
ISM: International Safety Management Code
STCW: International Convention on Standards of Training, Certification and Watch keeping for Seafarers
MIWB: Maritiem Instituut Willem Barentsz
Chapter 1

1 introduction
The chapter presents the purpose and the structure of the research. It describes the aims, its objectives and research questions. Furthermore, it defines briefly the significance of the educational technology for affective education in METIs.

1.1 Aim
The aim of the research is to show how educational technology can be beneficial for affective education in MET. The focus is on the human-technology relation, which is a fusion of physical science and behavioral science. The affective education deals with emotions, attitudes, and values of students through instructional design to modify thinking and behavior of the learner (Allen & Friedman, 2010) Educational technology is the application of tools and teaching techniques in the process of education. The combination of physical science and behavioral science improves the efficiency in teaching and learning (Concept of Information, communication and educational technology p. 33) and it is necessary for MET to develop skills, competence and values in seafarers.

1.2 Objectives:
The following objectives were set to achieve the aim of the dissertation:

- To define the concept of the affective domain with the reference of learning theories and the significance of the affective domain in maritime education.
- To identify educational technology (ies) and its impact on motivation and attitude of learners.
- To evaluate the usage of technology in order to deal with the affective domain in MET.

1.3 Issues
The study examines the following issues:

1. What is the description and role of affective education in general and MET in particular?
2. What is the effect of contemporary technology on the affective domain in MET?
3. How can present/future technology (ies) be used to improve affective education in MET?

1.4 Methodology:
A mixed methodology; combination of qualitative and quantitative, approach was applied to investigate the questions of the research. For this study data was collected by Questionnaire, interview, observation and case study.

1.5 Background:
There are a number of books reveal the fact about shipping industry but what the headline of the newspaper (the sea) of the day says “Costa Concordia rise from the grave for final voyage” the ship sank in January 2012 and still its wreck is trying to be managed. The accident raises a number of issues that proves lacking of maritime and failure of technology. There are articles discussing the issues of seafarer's conditions on board and security of the ship, this is the status quo requires grave concern for the seafaring profession however at the back there is news “IMO focuses on education and training for world maritime day 2015” (costa Concordia rise from the deep for the final voyage the sea, 2014, sep/oct). The front page shows the problem, the articles reveal the condition and the back page suggests the solution secretary-general (former) Koji Sekimizu said “effective standards of training remained the bedrock of a safe and secure shipping industry” he recommended “while compliance with its standards is essential for serving on board ships, he skills and competence of seafarer can be updated and maintained through effective maritime education and training” the recommendation needs considerable attention to understand “effective” MET and concept of “soft skills”. it requires improvement in MET. If the sequence of the reports is changed the last corner news becomes headline of the news it might convey the meaning that the process of change for improvement is continue in shipping industry. The slight alter in sequence changes the perspective of a common reader. The research study focuses on affective education through technology in METIs for bringing effectiveness in MET. The research study exposes the change in approach of teaching and training in METIs. Because the soft skills: leadership, interpersonal skill, cooperation and team work develop when approaches of teaching and training are changed. Affective education deals with student’s attitude and motivation which develops the soft skills for efficiency educational technology can be used which can facilitate in METI and across the METIs.
The effective MET ensures the qualified officers who ensure safety of the sea and ship. Shipping industry is still bright it takes the carriage of 90% of world trade; thousands of ships ply in the world’s water carrying cargo and passengers. (METNET, 2003) Maritime transport is still active and comparatively the most economical mode of transportation. The world’s commodities are transferred by sea all over the world (Jeffery, 2007, p.20). The people join seafaring profession all over the world; shipping is still economical mode of transportation (Giorgi & Grey, 2014) however prevailing circumstances in the maritime industry are less progressive. It has been losing popularity due to maritime disaster and incidents of maritime pollution (METNET, 2003).

According to safety and shipping review 2014, ship loses around 100 gross tons, 2,596 causalities occurred, 10 large passage ships lost, 94 large ships lost worldwide, most of the losses took place in south china and south East Asia, moreover the region of East Mediterranean and Black Sea is under consideration where incident ratio is higher than another place of the world. The large ships have been used for cargo however loss of the cargo ship; fuel consumption and piracy increased it also increased the risk of a severe impact of the marine environment if any incident takes place (Allianz, 2014). Therefore, amendments to the International Management Code for the Safe Operation of Ships and Pollution Prevention (ISM Code) were observed; moreover, IMO ensured sustainable improvement in safety of the ship in international waters. The IMO Assembly adopted the IMO Instruments Implementation Code (III Code) in December 2013. The incident of Costa Concordia, the IMO and the maritime committee (MSC) recommended interim measures for passenger ship to ensure the safety of passenger vessels, adopted amendment to international Convention for the Safety of Life at Sea (SOLAS) regulation III/19. It requires participation of crew members in a drill at least once every two months. The amendment will be enforced in January 2015. The report reveals the considerable risks that may be a threat to the future safety of shipping. The risks are: Eco ships, piracy, places of refuge, increasing ship sizes, cargo handling and storage, salvage and cat files however the main threat to the safety of shipping is Human error which includes: over-dependency on technology, lack of skilled workforce, Non-standardized training, inadequate monitoring, inappropriate enforcement of regulation, complacency, reduced crewing numbers, crew fatigue, poor communication, operational pressures, inspections and bureaucracy on board (Allianz, 2014). Hence, the human error is a cluster of issues, and ill skilled workforce is the most severe issue among all. Therefore, ISM code (1993) was adopted; not for the safety but safety culture in
management and operation of the ship (IMO, 2009) because cultural prevails by regular practice and safety culture is required on the vessel.

The safety culture breaches by malpractice; the practice refers application of skills: operational skill and soft skill. The shipping operation is carried out using operational skill and competence however the ship operation and management affect when soft skills: interpersonal skill, teamwork, leadership, cooperation and effective communication may not carry out properly. Thereby STCW 2010 Convention and Code requires demonstrating soft skill or non-technical skill of resource management, leadership and managerial skill (Devitt, 2012). Hence, the soft skills need to be developed and improved at maritime education and training for efficient ship operation.

The soft skills are developed in affective education that refers to teaching and learning that deals students’ interests, attitudes, and motivations. The concept of affective education was given in 1948 conference of the American Psychological Association to develop educational taxonomies or classification schemes of teaching and learning (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956). Affective learning deals how learners feel while they are learning and how they acquire learning experiences. Affective education is the process of the value internalization that provide guidance to set positive attitudes, opinions, and behavior which is suitable for profession and society (Miller, 2005). It is essential on board to promote decision-making ability and leadership quality, interaction in multicultural crew, team-work and communication so that close door syndrome or a cold war may not prevail in ship culture. The culture is values, and the universal values need to be an integral part of ship culture, which ensures safety culture on board (Giorgio & Michael, 2014).

A hierarchy, from simple to complex emotion, shows the affective educational outcomes The first step of the hierarchy develops receiving; an ability to listen to ideas initially listening and comprehension skill Next step is responding in interactions with others in developing interpersonal skills, and third is demonstrating values or attitudes properly to a particular situation that is reflection of learning into action in practical life (Krathwoht et al, 1964) the safe, secure and clean ocean (IMO, 2012) may possible when values are observed to care the crew, to protect the environment (IMO, 1974) and to promote the repute of maritime industry (Giorgio & Michael, 2014).
The hardship of life at sea may decrease if mutual respect, courtesy, openness become an integral part of ship environment. The negligence of soft skill creates isolation and makes the life at sea more challenging (Giorgio & Michael, 2014). Brown, Ferrill, Hinton and Shek (2001) describe that accountability, advocacy, commitment, empathy, honesty, motivation, optimism, respect, self-confidence are the fundamental characteristics of affective education (Brown et al., 2001). Therefore, considerable focus needs to be given on the affective domain in MET because maritime industry unites the world. Millions of seafarers all over the world are contacted to the maritime industry despite suffering and difficulties. The workforce may change into shipping nation; the maritime industry may regain the glory if there are strong personalities (METNET, 2003).

Affective education develops the leadership qualities in learners. It includes the concept of behaviorism, cognitive and constructivism. The ability of leadership may develop in learners through learning process. Because Leadership has no opposite, it refers positive values, and affective education is to infuse universal values in learners. Leadership is for sustainable development and positive change, and affective education promotes innovation, creativity, initiation and interaction. Affective education develops soft skill as leadership and interpersonal relation. It provides an environment to keep learning to achieve success and to help others that environment builds leadership skill in learners. Affective education modifies the behavior. The modification of behavior through proactive learning and acceleration of performance onto higher level are essential to influence others (Jeffery, Richard, 2012, p. 1-3).

In general, education and training be directed to proficiency and the ability to perform well in a particular discipline however when learners come in practical field they face difficulty to handle the responsibility. The research suggests that the human brain is self-organizing system that interprets input into patterns. Furthermore the brain can be trained to be creative. Mariners are distinct from conventional learners they are highly adventurous they pursue their dreams with their firm determination. However, they need continuous guidance, coaching and mentoring. The guidance and practice develop leadership capability. Educational technology may facilitate affective education especially in MET.

The concept of Educational technology is to apply science in art. The educational technology is the combination of physical science, electronics and behavioral science, which deals with the
process of instruction and behavior of learners. According to the need of the learner considering their learning style, age and intelligence and social, cultural background instructional methods and designed. Educational technology such as multimedia, computer, web, simulators accelerate their motivation, influence their behavior, change their attitude, broaden their cognition and activate their perception furthermore, the application of systematic knowledge about learning and instruction for teaching and training in order to improve quality and efficiency. It becomes more vital when educational technology is utilized to transfer values in learners (Concept of Information, Communication and Educational Technology. N.d, p. 32). It is essential in MET to use the philosophy of affective domain, instructional design, experiential teaching techniques, electronic and digital equipment in order to teach and train seafarers with scientific approach.

1.6 Problem:

“Is a seagull more worth than seafarers?”(SEKO, 2011) SEKO seafarers’ branch with ITF inspectors conducted survey to explore the situation on board vessels. The survey report revealed the exploitation of seafarers, severe working condition and serious safety situation at work place within international shipping. Seafarers are low or unpaid for years however they may not dare to raise objection or communicate. The possibility of change increases if seafarers become more confident and capable of bring change in themselves (SEKO, 2011, P.6). If the question is “is seagull more worth than seafarers” so the answer can be “is seafarer trained like an eagle?” The responsibility lies on METIs to develop confidence and self-esteem therefore It is important to change approach of MET seafarer are not only for operational work like a commodity who are trained for operational work they need respect and recognition as other professionals who are working for social services because each seafarer is an ambassador of his country whether he works on board of the vessel or in board of international organization. His work contributes in developing economic growth and national image. He starts his career as a number on board and gains his name through sheer hard working at international level but due to general ignorance of impact of shipping at national and international level seafaring career is overshadowed. Seafarer needs respect and dignity and it does not cost much but requires embodying values and virtue. Affective education develops values, sets positive attitude and modifies behavior for social adjustment. The social approval and self-esteem lead him towards self-actualization. In METIs it is required to develop self-confidence self-esteem and self-actualization through affective
education. The process of affective education requires change in approach of teaching and training. In countries where strict regimental training approach is emphasized, it can be restrictive in development of cognitive and affective growth of the learner’s personality. Despite having requisite competence, skill and discipline, their confidence is likely to be challenged on board of the merchant navy vessels. The regimental training approach as opposed to general merchant navy training are contrary to each other because in merchant navy requires discipline with dynamic, social attitude which develop innovative and assertive leadership. However, the regimental approach requires discipline with absolute obedience which develop authoritative leadership. The cadets who have been trained in regimental system have the potential to be influential leaders however they cannot explicitly exhibit their inner confidence as result of constant suppression in a control environment. In order to improve MET the approach of teaching and training need to be changed.

In this regard, affective education through educational technology is required at individual, group and institutional level. For this purpose, main characteristics of learning theories: constructivism, cognitivism, behaviorism and social learning theory and social cognitive theory need to be incorporated in MET curriculum. In designing instructional plan, approaches: andragogy, motivation, hierarchy of needs and multiple-intelligence, personality types are required to be considered. The affective education can be more effective through educational technology because it is combination of tools and teaching techniques. It facilities the development of affective education, catalyzes the learning process and contributes in maintaining knowledge management system in the institution. The quality standard system (QSS) can be improved by use of educational technology for affective education in METIs.

1.7 Procedure
The topic covered in the following chapters:

- **Chapter: 2 Literature review**
The chapter defines the concept of affective education and educational technology, evaluates the role of educational technology in affective education and presents the implementation of educational technology for affective education in Maritime Education and Training MET.

- **Chapter: 3 Methodologies**
The chapter presents research approaches: qualitative and quantitative, defines methods of data analysis: Thurstone, Likert scale and discourse analysis, describes tools for data collection: questionnaire, interview, case study and observation and presents ways to define quantitative data.

- **Chapter: 4 Data analysis**
  The chapter interprets findings analytically considering the concept of educational technology and affective education. Findings of observation and discourse analysis are given, leading to a discussion of holistic approach to the use of educational technology for affective education in METIs highlighting its possible positive outcomes.

- **Chapter: 5 Conclusion**
  The chapter gives review of the dissertation, recommendation and suggestion for new research

**1.8 Summary:**
The research describes the influence of educational technology for affective education in MET, investigates the significance of affective education in MET, finds the instructional design and strategies thereby educational technology can be used effectively to set attitude of learners to infuse values in their behavior and to increase their motivation in METIs.

As the previous chapter one discusses the background of this study and its objectives. The aim of the chapter is to make a review of the existing literature which could help in achieving the objectives of the study. The chapter is divided into four sections: Section one defines the concept of affective education, Section two defines the concept of educational technology; Section three evaluates the role of educational technology in affective education in general; Section four presents the implementation of educational technology for affective education in MET.
Chapter 2

2. Literature review
According to the BIMCO/ISF manpower survey, there is shortage of qualified officer in OECD. The maritime labor needs to be qualified and skillful. China is high manpower supplier, has crossed socio-cultural and lingual barriers, providing sufferers to most of those international ships (Li & Wonham, 1999). The European Commission’s Thematic Network on Maritime Education, Training and Mobility of seafarers recommended the following 4-E concept: (METNET, 2003)

- Essential minimum standards 95 Convention
- Extension shipboard qualification beyond STCW requirement
- Enrichment additional qualification sea-shore based employment
- Elevation MBA or MSc; the certificates of competence.

Furthermore, the report reveals that there is lack of equilibrium between cognitive and affective domain. The profession requires knowledge, competence, proficiency and positive attitude (METNET, 2002, P-19). STCW 95 has encouraged the use of technology in MET. METIs are recommended to encourage learners to interact with fellows and collect information timely. CAL, CBT, DL can abridge huge institutional gap between student and teacher. In METIs affective education across the boundary can be provided to learners for motivation of leaners.

Maritime industry needs qualified officers; the word “qualified” has connotation of skill and knowledge. An officer passes the examination, completes training and acquires practical skills after education and training he needs to demonstrate leadership qualities, decision making abilities, interpersonal and problem-solving skill, in collaboration, cooperation and team work to maintain the operation on board of the vessel. It is demonstration of cognitive, social and physical skills.

Generally in METIs, more emphasis is on cognitive and psychomotor skills where students are trained in fixed and static environment to comply with rules and they are required for operational skills only, however, maritime industry demands “optimized behavior” and competence. Thereby operational, managerial and technical tasks can be executed efficiently. In developing countries, METIs develop understanding and skill according to STCW95 in regimental environment there
The affective domain seems under the shadow. The affective domain produces: sense of “honor, rule, and responsibilities, loyalty, truth, integrity, security, environmental and safety consciousness, respect for social order, respect for dignity, right of others, social interaction” (Manuel, 2005) and virtues which can be groomed the officer and enable him to demonstrate the essence of ISM Code and STCW95 on board. It requires change in MET; not alteration in rules but variation in approach of teaching and training. It requires dynamic and scientific approach which goes “beyond rules, skills and knowledge” (Manuel, 2005) and employs metacognitive knowledge, creativity, innovation, self-actualization and self-discipline.

The 2010 Manila amendments to STCW Convention and Code require leadership and managerial skill. The skills cannot be taught but developed through affective education which can alter the attitude, enhance the motivation and infuse the values for performance at optimum level. In teaching and training of seafarers, motivation, beliefs and values are building blocks and foundation of soft skills. Dr. Daisa Ikeda suggested the need of “Human Revolution” need of values, optimistic approach in maritime industry. IMO decided 2010 as “the year of seaman” in order to increase seaman in number and to improve life on board for seaman (Shiroz, 2010 p.155-158) and human element is being considered at priority however improvements are required at grass root level where seamen are trained because joining a new ship exposes seamen to a shock. They expose to a new culture and new environment. Despite being highly motivated for learning, they experience isolation, depression and deprivation if they don’t have interpersonal skill. Their past competence, skills and knowledge facilitate them in adjustment in new culture. Their acceptability and adaptability of ship culture ensure the safety culture. They utilise their innate abilities and cognitive learning to deal with risk-full life. Being a seafarer does not only require minimum qualification and operational skill but demand strong stamina, great patience, quick intelligence, profound belief and high values in order to survive in the challenging profession (Salter, 2010).

In METIs they are considered as a “product” and trained for operational work only. They need to be considered individual and “treated as whole, complete person” (Moreby, 1968. P. 18). So that they can cope with up coming difficulties. For this purpose, AE is necessary to develop motivation, to infuse values and to set positive attitude in seafarer duringing training the process of internal change can be active and efficient using ET in METIs.
2.1 Affective Education (AE)

“By affective education is meant that part of the educational process that concerns itself with attitudes feelings, beliefs and emotions of the students this involves a concern for the personal and social development of students and their self-esteem…interpersonal relationships and social skills are recognized as central to affective education”. (Lang, 1998)

The AE focuses on internal change in personality. It is a process and end-product. It is not the name of any specific subject but embeds in all subjects. It is humanistic education, moral development, and student-centered learning, self-actualization and value education because each subject of life requires social application in order to eliminate the social ills. It teaches how to deal racism, drug, violence, crime, lack of discipline and interpersonal conflicts. Thereby one may cope with one’s problems. It aims to create more ethical and moral society (Reigeluth, & Martín, 2013, p.485-487).

AE refers beliefs, feelings and attitudes of students and teachers (Technology, 2012). The cognitive educational approaches are designed for the academic subjects on. It supports in knowledge acquisition however it has been observed that students are good in studies, but they become a victim of bullies, harassment or social ills. The issue necessitates the AE in academies which develops moral, spiritual and values in students, enables them in social adjustment, and teaches them to respect all culture and beliefs.

In every society, moral values, virtues and code of ethics are integral part culture; therefore, affective learning is an important part of the educational curriculum. In 1948, America Psychological Association called a meeting to develop educational taxonomies. The aim of classification of learning scheme was to standardize the structures for educators in designing curricula and learning activity (Bloom et al., 1956). The occasion is considered significant development of curriculum designing. In 1956, Benjamin bloom presented taxonomy including cognitive domain; the taxonomy was further developed he added affective and psychomotor skill. In the taxonomy, educational objectives and goals are placed into hierarchical order that helps educator creating performing task designing assessment questions and providing feedback to students. The educational objects include cognitive, affective and psychomotor skill. The learning process starts from knowing (as it is shown in figure: 1) and finally reaches at the stage where the learners begin to apply their knowledge into practical life, they learn how to analyze
and evaluate things. The learning process leads the learners from low order thinking to high order thinking skill (Allen, Friedman, 2010).

Figure 1

Source: (Allen & Friedman, 2010)

The bloom taxonomy bases were further revised by Krathwohl in 2001 to make it more practical and useful for achieving learning outcomes. The revised taxonomy is a two-dimensional framework: knowledge and cognitive process. Instead of using nouns, all categories are defined by verbs for making a plan of curriculum and methods of instruction more practical and comprehensive (Krathwohl, 2002, p.213).
Affective domain (figure: 2) comprises on five categories: receiving, responding, valuing, organization and characterization (Schoenly, 1994, p. 209). The taxonomy is hierarchical structured and this hierarchy is used in curriculum and instructional program (Reigeluth, & Martín, 2013, p.490).

These are the following levels which develop affective domain through learning process.

**Receiving and responding:**

At this level objectives are conditioning of the participants they get awareness of topics they realize that these topics are the issues of the society so they ask, describe and give their point of view

- **Valuing:**
  
  This is the stage when the process of self-internalization starts. Learner realizes the worth of the learning activity and willingly participates and gives own arguments.
• **Organization:**
  
  At this stage, affective objectives deal with the interrelationship of values and values prioritization.

• **Characterization:**
  
  Values are internalized

The revised taxonomy presents a new dimension of knowledge as factual, conceptual, procedural are in previous taxonomy it adds and metacognitive knowledge (MK) (Krathwohl, 2002, p.213-214).

![Table 1. The Knowledge Dimension - major types and subtypes](image)

As it is shown in table 1: MK involves self-knowledge; knowledge of cognition, develops higher thinking, self-awareness, self-reflection and self-regulation. In order to establish MK, different teaching strategies and tasks are used which develop learning, thinking and problem-solving ability.

The revised taxonomy focuses enhancing MK and its implication for teaching learning and assessing in the class (Krathwohl, 2002, p. 215). By help of MK, a learners recognize their strength and try to improve their weakness. The knowledge of self improves self-esteem and
helps the learners in environmental adjustment. The revised taxonomy covers various theoretical approaches: Piagetian model, cognitive science, information progressive model, Vygotsky and social-cultural learning theories. The Metacognitive task improves reasoning and critical thinking; provides learner knowledge of self, surrounding and culture (Pintrich, 2002, p.218-222). It is essence of AE to develop MK that enable learners to characterize, organize and internalize values. For this purpose factual and MK are necessary. The taxonomy of affective domain bases on internalization process in which an attitude and value become prominent part of individual. According to the taxonomy, the more a value or attitude is internalized the more likely that value or attitude influence the behavior. (Reigeluth, & Martín, 2013, p.490).

As **Table:2** presents two dimensions of knowledge: cognitive process dimension forms the horizontal axis and knowledge dimension form the vertical axis as shown in figure:3.

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<tr>
<td>D. Metacognitive Knowledge</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>


The organizational structure promotes communication leads the learners from acquiring simple skill to most complex skill (appendix) and from simple to complex emotions (as shown in table: 2).
<table>
<thead>
<tr>
<th>Affective domain</th>
<th>Characteristics</th>
<th>Simple feelings &amp; immediate reaction</th>
<th>Complex emotion &amp; ultimate action/response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receiving</td>
<td>• Learner's sensitivity to the existing stimuli &lt;br&gt; • Willingness to receive &lt;br&gt; • Awareness &lt;br&gt; • Selected attention</td>
<td>Feel sense capture experience</td>
<td>Pursue attend perceive</td>
</tr>
<tr>
<td>Responding</td>
<td>• Active attention to stimuli &lt;br&gt; • Motivation to learn &lt;br&gt; • Acquiescence &lt;br&gt; • Willingness responses &lt;br&gt; • Feelings for satisfaction</td>
<td>Conform allow cooperate</td>
<td>Contribute enjoy satisfy</td>
</tr>
<tr>
<td>Valuing</td>
<td>• Beliefs &lt;br&gt; • Attitude of worth &lt;br&gt; • Commitment to value &lt;br&gt; • Acceptance &lt;br&gt; • Preference</td>
<td>Believe seek justify</td>
<td>Respect search persuade</td>
</tr>
<tr>
<td>Organization</td>
<td>• Internalization of value &amp; beliefs &lt;br&gt; • Conceptualization of values &lt;br&gt; • Organization of value</td>
<td>Examine clarify systematize</td>
<td>Create integrated</td>
</tr>
</tbody>
</table>
The taxonomy separates each domain: cognitive, affective and psychomotor skill however it is not intrinsic separation in behavior. Behavior may not be divided into different segments but cognitive-affective unity in behavior (Lang, 1999, p.17). The affective domain employs the concept of internalization that is central regulative device which develops self-awareness, self-esteem, self-displace and self-confidence. It comes through affective development. In the process an attitude and value become prominent part of individual. According to the Khwort’s taxonomy, the more a value or attitude is internalized the more likely that value or attitude influences the behavior. The taxonomy is hierarchical structured and this hierarchy is used in curriculum and instructional program (Reigeluth, & Martín, 2013, p.490). The educational/instructional tools accelerate the learning process and decrease the learners’ anxiety through learning process (Smith and Ragan, 1999). It is an important classification for development of affective education. Share experiences which transfer values of common humanity.

Khwort’s concept of affective domain incorporates with Maslow theory in AE

Maslow in need of hierarchy (figure 3) keeps biological needs at the lowest and social needs before the level and self-actualization (Frager, & Fadiman, 1970).
Dissatisfied needs create conflict and disturbance in behavior. (Robert, 2013). The gratification of basic needs develops self-actualizing. Carl Roger’s defines this is highest degree of personality growth when person being to work for the welfare of others (Olson, 2013). Human beings have innate inclination toward higher levels of health, creativity and self-fulfillment. (Frager, 1970).

AE leads toward self-actualization and it is beneficial for adults. Khwort’s taxonomy, Maslow’s need of hierarchy and Malcolm Knowles concept of andragogy incorporate in AE when is applied for teaching adults. Since students in METIs are adults application of AE may not be ignored MET. T

In view of Malcolm Knowles adults’ abilities and interest unlike to children’s acquisition. Adult’s education is an attempt to discover a new method and create a new incentive for learning; its implications are qualitative, not quantitative (Knowles, 1986, p- 28-31). Adult learners are precisely those whose intellectual aspirations are least likely to be aroused by the rigid, uncompromising requirements of authoritative, conventionalized institutions of learning. (Lindeman, 1926, p-27-28). AE increases their motivation, gives them spiritual and moral
aspiration, social-cultural awareness of values and humanities and develops the interpersonal skill (Reigeluth, & Martín, 2013, p.490). The prime purpose of the adult education is to conform the adulthood of the participants and increase their participation in learning activity so that they may become independent and decisive. Therefore they may achieve sense of achievement and sense of fulfillment. Training is contrary to indoctrination which confines leaners; restricts their thinking and codifies their behavior (Rogers, 1986, p-96).

AE deals with affective and cognitive domain. These domains are overlapped and influence the behavior. Cognitive process develops the compression of knowledge and affective domain develops the realization and characterization of knowledge in form of values. Learners acquire first awareness and understanding then they internalize values. Factual knowledge is for operational skill and MK is for creative and soft skills. However besides knowledge, learners need approval and appreciation, which will develop self-concept, self-awareness, self-confidence and self-efficacy.

For AE following features are important (Schoenly, 1994, p. 210-212):

- **Learning environment** it plays a major role in AE, an atmosphere need to create where students have mutual respect, support and freedom of expression. Teacher appreciates interaction in the class, maintains trust relationship with students. Students participate with each other friendly in a supportive environment.

- **Lectures** are affective method for AE however careful questioning technique needs to be applied during lectures because it fosters the process of internalization of values. Properly organized questions helps in conceptualization of values students begin to think about and they make their mind set. Lectures are given for theatrical subject. The purposes of Lecture are: coverage, understanding and motivation.

- **Case study** method develops critical-thinking skill and problem-solving ability. AE requires setting examples before students case study gives students opportunity of learning and behavioral modification. However case study should be brief and
during discussion, interpersonal discourse need to be observed carefully because case study is not for sharing information but for developing the ability of healthy communication they may learn turn taking, making arguments and accepting others point of views.

- **Cooperative learning activities** develop beliefs and attitude
- **Role play** gives students an opportunity to interact in human relation situation which allow them to explore their meaning of existence and purpose of their work. they may learn attitude, values and decision making
- **Simulating game** promotes active learning. There are two types of games; content games which comprises on structured roles and constant and fix rules. Process games are comparatively controlled and base on flexible rules. Games are goal oriented but in affective education these are used active learning rather than competition and high score.
- **Value calcification** includes the identification and sharing of personal values. It promotes awareness, empathy, insight, self-awareness and self-discovery.
- **Values inquiry** encourages exploring the concept of values in social and moral issues.

Since AE is a concern with moral, spiritual and values development. It operates at following three levels (Lang, 1999, p-17 )

**2.1.1 Individual level**

Educators focuses personality of individual student his profile, need, self-esteem, learning style, motivation, attitude for studies and his interest in learning. Some students cannot participate in the class due to shyness or lose interest due to personal problems. In this condition, teacher promotes emotional literacy and self-esteem, helps them in learning, and guides them who are going through social and emotional conflicts. They need guidance and mentoring besides knowledge comprehension. Teacher sets activities and challenging tasks and encouraged to achieve the goals, students come out of bad influence of peer pressure. AE enhances the innate abilities of students and promotes collaboration and cooperation between teacher and students (Lang.1999, p.17). At this level, student’s personality and traits : social-competence, values,
morals, ethics, motivation, interest, attitude, emotions and feelings are focused. AE teaches how to achieve a proper goals, develops of moral and ethics values, positive directions, motivation in the vocational program (Reigeluth, & Martín, 2013, p.490).

2.1.2 Group level
AE makes learner active, cooperative and collaborator using interactive teaching methods and develops interpersonal skill in individual. His performance in group and his interaction among peers are observed. They are guided to eliminate discipline violation, social awkwardness and antagonistic behavior towards others. It develops the sense of belonging to the institution. Teacher discusses social issues to develop their social emotional understanding. According to the affective education teachers are required to be open-minded and friendly so that student may discuss their problems related to drug, identity crisis and social adjustment. They need advice and support. In case of teaching adults, it is very important stage where learner needs advice in taking decission. Firstly studnets personality and then his involvement with others and finally At the first level

2.1.3 Institution level
AE makes strong connection between students and institution. They should feel that institution is concerned with their welfare. Seminar, conference and which arranged on different social issues such as drug, injustices, HIV, violence should be arranged to develop the cognitive and affective thinking (technology, 2102). Because AE does not take place in the class room only but also provides the supportive learning environment by help of administrative staff and teaching faculty. It develops a healthy personality, helps learner in interpersonal relation and social adjustment. It is personal and social development; it is development of emotional literacy. The ethos of institution infuses into the personality of individual (Lang, 1999, p-17-18). At individual, group and institutional level through affective development is a process feelings and emotions are used for action to serve the best interests of the individual and society (UNESCO, 1992, p-11.

AE is an educational process that develops maturity, sensibility, social responsibility, motivation and effective attitude in students during academic period, requires institutional support and teacher’s guidance especially for adults’ teaching and training. It brings internal change,
accelerates the individual growth, makes the learner well-adjusted and affectively developed person thereby individual learns the best way to serve society.

- Show care and concern to their problem; cooperate in their learning difficulties proving them additional academic assistance, marital, aids or arranging tutorial.
- Allow learners to reflect their perspective to each other to enhance their rapport.
- Give your rationale of assignment and training to build up their interest and sense of responsibility.
- Allow learners to introduce themselves
- Avoid negative conditions: pain, fear, anxiety, frustration, humiliation, boredom during learning process.
- Enhance successful learning; use clear goals, avoid inter learner competition, break down course into small units and arrange frequent formative evaluation.
- Make subject more interesting and simple their first learning experience should be positive.
- Remove mistaken beliefs and negative attitude during learning process.
- Identify dismal, distant, depressed, disappointed learner and promote collaboration and cooperation.
- Encourage leaners, give positive reinforcement, minimize mistakes, appreciate demonstration and develop faith in learner for their potential.
- Develop learners’ personal control of the context of learning.
- Encourage learners to use abilities and strength to success. And reassure them to understand reason of their mistakes
- Make learning goals unambiguous and explicit
- Make evaluation criteria lucid and fair.
- Enhance learner expectancy to success and provide display or demonstration of information.
- Allocate and announce specific time for successful learning
- Set goal- oriented approach
- Make a learning contract with learner; setting their learning goals, learning performance, evaluation criteria and fulfill the contract within specific time.
The affective domain can be assessed by self-report measures. Verbal or written test are used to know the attitude and motivation of the learners (kraiger, Kurt., ford, kraiger & salaa, Eduardo, 1993, p.311-323). The observation reveals the behavior, and discourse shows the high order thinking. Simulation training exhibits learners interaction with machine shows self-efficacy The self-efficacy is one’s perceived performance capability for a particular task. During the AE behavioral characteristics and social interaction are encouraged. For written assessment easy and creative writing are used that reflect students high order thinking (Adkins, 2004)

2.2 Educational technology (ET)

ET refers the use of science for art. It is a combination of physical science and behavioral science involves science of learning and communication to teaching activates the learning process, provides effective learning experiences. it Includes:

- Traditional instructional technology: multimedia, projectors, computer, internet etc
- Modern technology simulator, ICT and soft wares etc.
- Learning strategies for knowledge acquisition, storage, manipulation, management, transmission or reception of data used for educational purpose
- Electronic devices that are used in the instructional process for presentation, feedback and assessment.
- Teaching techniques

Teaching with technology is an art; active interaction of human being with consequently brings change in human nature, human learning style, needs and interest and influences motivation, attitude and behavior (Concept of Information, communication and educational technology. n.d p. -31). Therefore it requires leaning theories and teaching approaches to improve the educational process.

“ET is a complex integrated process, involves people, procedures, ideas, devices and organization for analyzing problems and devising, implementation, evaluating and managing solutions to those problems involved in all aspects of learning.” (Concept of Information, communication and educational technology, p.33).
Figure 4: Concept of Information, communication and educational technology (p. 31) As the figure shows ET is the inclusion of traditional and modern electronic makes the educational process more active and advance.

**Figure 4: Educational Technology**

![Diagram of Educational Technology](image)

Source: Refeeq & Ahmed, 2014

The purpose of ET is not limited for providing CBT; it is prerequisite to set the positive attitude of students towards technology and ensure it is used for constructive purpose (Refeeq & Ahmed, 2014, p. 308). It is the application of technology for teaching and learning, includes scientific principles to instruction and scientific knowledge about learning and condition of learning. Improves the quality of human learning, facilitates learners in achieving the goals maintaining internal discipline and adapting environment, includes various mass communication, modern testing and evaluation techniques. It deals with management, organization, human resource, and material hence it is related with educational objectives, planning and implementation (Concept
of Information, communication and educational technology, p.35). Technologies are used for the following educational purpose such as (Refeq & Ahmed, 2014, p. 307):

- To help designing instruction
- To achieve cognitive objectives
- To use multi style and methods for one subject content considering learner’s learning style
- To facilitate the process of instruction and application of learning theories in instructional design
- To choose appropriate material for instructional design
- To select effective methods for the implementation of instructional design
- To evaluate each aspect of instructional design
- To develop team work and collaborative learning

However, there is difference between Instructional Technology and ET although both are used for educational purpose. Instructional Technology is use of computer for instructional and learning purpose in the class. It facilitates learners to learn, design, develop, produce and evaluate efficiently. The concept of using Instructional technology is to take institution as a system which evolves gradually and requires continual improvement. It does not replace the teacher but obliged him to use technology effectively (Refeq & Ahmed, 2014, p. 307) however ET includes entire process and systems of learning and instruction it covers ET is used in the process of development human capability (Refeq & Ahmed, 2014, p. 307).

Whenever technology is used for education purpose in student-centered class where make their learning experience more meaningful (Beal, 2000, p. 127-132).

2.3 The role of educational technology in affective education

Affect refers individual personality; human feelings and emotion; internal condition and tendency of the person to act in certain ways owing to those feelings. It is contrary to cognitive domain. These feelings and emotions make the attitude of the person and develop his motivation and interest in educational process. Hence, affective domain is underlying foundation of cognitive domain (UNESCO, 201992). Affect is influenced by technology if technology is used as ET, tool and techniques, it can bring positive change in behavior. For bringing positive change
AE is used because affect is a human inclination towards action based on feelings and emotion (UNESCO, 1992, p-10). This inclination for action may be good or bad. AE encourages the good motives, develops the positive attitude and fortifies socially acceptable behavior. Since universal principles, religious teaching and moral values inherent in AE therefore it is an integral feature of curriculum all over the world (UNESCO, 1992).

The effective use of ET catalysis the learning process, strengthen the motivation and creates the supportive learning environment ET can be used for cognitive and affective domains (See Table 2, Appendix-1 Concept of Information, communication and educational technology. n.d. p. 31). The progressive technologies increases the educational process (Ghamem, Mohamed , Hamad Ayman, 2004) and motivation process thereby goal oriented activity is sustained. The student can be extrinsically motivated, or intrinsically. They pursue goal for inner satisfaction or for social approval. They are motivated when they find challenge, feeling of autonomy, curiosity, creativity and fantasy in the activities (Eggen, paul,. Kauchak, don 2010, p.83). ET enhances motivation and awareness throughout learning process. Krathwohl has point out awareness of fact conceptualize the values, gives satisfaction and increases motivation.

2.3.1 Computer based teaching (CBT)

It increases learners’ involvement in learning process, fosters cognitive process, gives motivation, creates active learning environment, promotes communication and provides students content efficiently if it is used purposefully. It is necessary to check visibility, simplicity, audibility and relevance of the material (Fisher & Muirhead, 2013). CBT activates significant role in cognitive development if instructional design is well organized. In view of Piaget, cognitive development is a transitional process where learning continues from sensory-motor stage to preoperational, concrete operational to operational stage (Manuel,2005, p.18). it is a progressive reorganization of mental processes due to biological maturation and environmental experience. A child born with basic mental as he grows his mind nervous also grows he constructs an understanding of the surrounding world (Fisher, 20014). CBT enhances understanding. In view of Krathwohl learners takes responses to achieve the desired objectives. CBT add their information however they need to know the correct responses.AE guides them to take correct decision because there is “credibility gap” that is overt behavior students give response that is acceptable however AE brings inner change.(Eliss,1969)
During the active learning process, learner does not only learns but strong reinforcement shapes his behavior and negative reinforcement restricts unethical actions (Eggen, paul., Kauchak, don 2010, p.170). Learners are motivated when they find challenge, feeling of autonomy, curiosity, creativity and fantasy in the activities (Eggen, paul., Kauchak, don 2010, p.83).

According to Kohlberg’s theory of moral development, moral values need to be developed at the age 10-20 because culture and social trends influence learner’s cognitive thinking at this stage his mindset can be shaped through effective teaching tools. After 20, thoughts are fossilized and attitude becomes rigid. Therefore, moral issue need to be discussed in the class especially while teaching adults (Eggen, paul., Kauchak, don 2010, p.83). It needs to give awareness especially for some social ills: as drug (ITF 2012). The teaching with effective tools can develop the beliefs and positive attitude of the students. As the following technology is used in METIs.

Krathwohl emphasizes on awareness of fact that helps in conceptualization of values however the values cannot be conceptualized unless the barrier between unconscious and conscious mind is removed. A stimulus penetrates in the barrier and brings the mind at level of awareness. If the learner is interested stimulus prompts the students to make value judgment (Eliss, 1969). AE directs them to acquire those values that are acceptable in society.

2.3.2 Multimedia
It gives the holistic view motivation and strong reinforcement. It involves leaners in activity and provides sensory information. The Instructional multimedia with effective teaching methods provides active learning environment, grasps attention. It is also used in the transformation of learning, collaborative learning and situated learning. However, it is important to balance the use of multimedia. Learner’s needs and learning style should not be neglected (Alessi & Trollip, 2001). In view of Gardener, learning is a cognitive process. It takes place when human mind is involved in problem solving activity or engaged in incomplete task. Man acquires knowledge through perception and sensory qualities his mind contentiously anticipates, assumes and guesses he may perceive that is not factual even. According to the laws of grouping mind tries to depict the holistic picture (Hergenhahn, 1988). Multimedia provides stimulus therefore learner may encode information; it makes the learner reflective and responsible. It develops metacognitive skill artificial intelligence and critical thinking to solve the problem (Alessi & Trollip, 2001). It helps in developing problems solving skills.
2.3.3 Information Communication and Technology (ICT)
These are a diverse set of technological tools and resources used for creating, storing, managing and communicating information to support teaching, learning and research activities (Vajargah, et al, 2010). It makes the teaching and learning process active and connected to real life (Refeeq & Ahmed, 2014, p. 308). Young people use ICT and interact with social internet forum; it facilitate in networking, collaboration and problem-solving skills. However it is necessary to establish good practice and monitor their work an institution needs to establish e-mature culture and good practice of ICT. Its access use curbs the creativity and causes isolation. (Becta, 2007, p.7-12).

2.3.4 Distance Learning (DL)
It is a method of learning at a distance rather than in a classroom and provides a variety of options for teaching and learning (Alessi & Trollip, 2001, p. 382). The vital aspects of distance education are its connectivity and accessibility. It gives access a large number of students to knowledge economically. It needs to be integrated and synchronized properly (Schmidt, 2000, p.75-89). DL is an artificial dialogic learning opportunity, helps in making bridge between students and teacher through a distance study course which provides learning within a system of processes. It motivates adult learners who may not come to classroom because of social, professional or family commitments (Holmberg, 1989, p. 1-25). The following functions of course material can make distance education more effective.

- To stimulate attention and maintain motivation
- To inform students about learning outcomes
- To make link between prior knowledge and new learning
- To establish interest of student throughout the course
- To design material plausible and coherent
- To give clear instructions of course structure
- To provide feedback.
- Promote transfer of knowledge and facilitate retention (Holmberg, 1989, p.63).

Distance education can modify the behavior if instructional design is well organized. Instructional- design provides complete assistance in teaching AE. However there are following issues in teaching AE in DL.
• Affective development is complex and time-taking process
• It can make social-ethical or religious contradiction, it can be considered indoctrination or brainwashing because values are in variance.

AE can develop social adjustment, interpersonal skills and collaboration, cooperation and teamwork (Reigeluth, & Martín, 2013, p.487-488) by DL.

2.3.5 Web Based Training (WBT)
It is the combination of three social and technical developments: distance learning, computer-conveyed education and internet technology. WBT does not change the innate ability of humans learning however it has altered the teaching patterns. WBT is preferred means of creating effective learning experiences for distant people in a very short time (Horton, 2000, P. 2-). It provides network for learning (Alessi & Trollip, 2001) for self-study but student needs guidance that establishes a good rapport, increases motivation and promoted positive attitude to learning (Holmberg, 1989, p. 1-25). Web based learning program promotes collaboration, cooperation and communication tool. It teach globally, therefore content material should not violate the ethics of any culture but provide a positive framework which can construct thoughts and attitude (Horton, William, 2000). According to Vygotsky’s sociocultural framework, Human constructs his thought and the social understanding in social negotiation. Students pay attention to stimuli they perceiving with their own understanding, their limited working memory. In his view child learns fast in interaction with others. An electronic learning environment develops child’s cognition. Therefore instruction should be provided in any environment where students can use tools to mediate and interact with others it is his cognitive development process. It is electronic social interaction therefore mentoring is very necessary for leaners (Bonk & king, 1998, p.234).

2.3.6 Simulation Training
It is an instructional methodology enhances motivation and transfer learning into experience (Alessi & Trollip, 2001) activates the brain, arouses interest in learning; maintains learning behavior and sustains positive attitude towards learning if plan has been designed well. Absence of stimulation causes lack of interest, fatigue and distraction. Stimulation triggers the emotions since learning does not take place unless emotions are attributed to learning and learning environment. It is important for instructor to observe learners’ emotions; their influence on behavior and their impact on thinking because the constant dynamic thinking infuses energy and enthusiasm in learning process. A supportive environment builds confidence, gives self-
confidence and emotional support to acquire new skills and knowledge. The emotional support is positive reinforcement for learner which fosters his learners and shapes his attitude therefore instructional planning and motivation planning necessarily synchronized and harmonized with each other (Wlodkowski, 1988, p-51-56).

Besides development of operational skill and interpersonal relationship and decision making ability need to be evaluated. In training of particular operational skills, soft skills: cooperation, team work and interpersonal skill effective communication skill need to be practiced.

A well planned simulation exercise develops critical thinking and decision making ability (Passmore, 1980). The group activity enhances their self-confidence and teaches them how to work in a team. In MET it can be very helpful in teaching and assessing technical and non-technical skill. Students need self-fulfillment and self-determination, social influence increases dissonance they require competence and confidence reinforcement and motivation (Wlodkowski, 1988). Anxiety and frustration decrease their self-esteem and confidence (Wlodkowski, 1988, p46-47). Interest, confidence, values, sense of responsibility and time management skill need to be developed during training (Wlodkowski, 1988, p-75-103). For modification of attitude following features may help (Rogers, 1986, p.170):

- Identify the learner’s attitude during learning
- Integrate prior knowledge with new knowledge
- Reject reappraisal of thinking and behavior of students
- Allow and facilitate process of change it is slow but continuous
- Develop ability in students to draw their own conclusion
- Create climate to develop their confidence and interaction

Mentoring helps in behavior modification it guides to less experience individual (Merriam Webster, 1996). Professional knowledge is transferred in different informal learning it gives awareness and knowledge to less experienced young fellows timely

The contemporary technology: CBT, Multimedia, ICT, DL, WBT and simulators are being used however there is need of behavioral objectives in MET. Behavior consists of responses students learn behavior without understanding that is “guesswork” stage that develop overt behavior. In vocational training course students are trained for specific tasks. This is operant conditioning
which develops terminal behavior and close-loop learning. The temporary learning due to drill exercise achieves the desired outcome but it may cause accidents. AE develop develops creativity and reasoning. It provides open-ended behavioral objectives where students interact and apply their problem solving skills.

they may neither express their views nor take decision such training is like rust on their innate abilities. Their learning is basically human behavior modeling their attitude is shaped by role play and group activities (Rogers, 1986, p-170). Education is not learning facts; but the training of the mind to think.

### 2.4 Implementation of ET for affective education in MET

The education system may not accomplished affective goals. AE takes place in learning environment that creates open-mindness, tolerance (within limits), curiosity and ability to make value judgments. Class room discussion develops a sense of values. Krathwohl suggested that awareness develops interest that may extend to higher level of affective domain (Eliss, 1969). however METIs trained students for minimum knowledge and operational skills. However an effective MET is to train beyond knowledge and skill and internalize values and commitments to ideals thereby seafarers can achieve global goals. They are the real building blocks of the maritime industry who establish safety culture that can be ensured by positive attitude and motivation. The safety culture is “commitment, competence, attitude and motivation of individuals at all level”(Manuel, 2005,p.261)

Affective domain enhances awareness fosters willingness to respond to psychomotor responses. AE provides continued learning that brings behavioral changes individual accept the responsibilities and response positively. The negligence of affective domain may cause lack of realization. In cognitive aspects of education creates overt behavior (Eliss, 1969) whereas AE internalizes the values, commitment and attitude that establishes safety culture. Moreover the positive attitude, motivation and values develop the soft skills. In Aviation community non-technical skills are highly emphasized in Crew Resource Management Courses. However the application of non-technical skill system that has been designed for aviation crew members. In METIs there is lack of uniformed standards for affective domain. in MET students are adults
their professional demands are very challenging they need high motivation and positive attitude that can be possible through AE.

2.4.1 Attitude:

Attitude is a combination of a perception with a judgment it has strong influences on learning and behavior. Adult’s attitudes influence their learning and the influence increases and expended due to teacher, subject matter, learning experience and his own expectancy for success. (Wlodkowski, 1988, p-73)

Attitude helps person to make sense of the world and to deal with the world. It helps being familiar in unknown condition observing safe around things which are initially unknown hence by means of suitable attitude person may anticipate and cope with unfavorable condition. Attitude gives guidelines which let person to decide own reaction. In result, life becomes more simple, stress free because person adopts specific behavior pattern to cope with the situation. In psychology it is called “least effort” principle when person applies his prior experience and past reaction to cope with present problem in current experience. This is the dire need of human being to shape attitude as per condition. Attitudes are not innate ability but they are learned through processes such as experiences, identification, role play and direct instruction. New experiences cultivate new attitudes which can be modified and changed. Hence attitudes are shift, intensify, weaken and reverse. It depends on our learning what person learns through experiences it becomes his attitude which he uses to deal with new situation. Attitudes provide security to the person especially in unpredictable situation and develop positive self-esteem. They cast strong impact on behavior and learning they may perpetuate intense fear of failure. For adult, it is important to acquire suitable attitude considering personal and professional goals. Instructor may use a flexible approach of teaching to help him in shaping and molding attitude according to professional requirement (Wlodkowski, 1988, p-46-47).Thus andragogy focuses on attitude formation of adult.

2.4.2 Motivation :

The six major factors: Attitude, Needs, Stimulation, Affect, Competence and Reinforcement influence the learner’s motivation (Wlodkowski, 1988, p-61-65). Effective learning process takes
place when learners are intrinsically and extrinsically motivated. Need makes the foundation of motivation and motivation makes actives the learning process (Wlodkowski, 1988, p-47-49). There are three following critical periods in which these strategies may influence learner’s motivation (Wlodkowski, 1988, p-59-60).

1. Beginning: when the learner starts the learning process.
2. During: when the learner is involved in the learning process.
3. Ending: when learner completes learning process.

   Positive attitude and motivation make the learning effective and effective learning leads towards level of self-actualization and internalization.

   Adults seek wisdom and experience. Their education is a quest of life’s meaning. It promotes will and liberty for learning. Learning is not confined to the classroom only and education is not based on an institution, it is learning for adults because they are in the age of transition and they are in process of personality development (Lindeman, 1926)

The learning process of AE can improved by ET. In administration level AE can be established by Knowledge management. KM is a tool, technique, behavior, and manner of working that an organization designs to work effectively. The learning process establishes a culture of sharing knowledge in the organization. It shapes the human behavior in order to perform efficiently (Collision, 2010). MET and it can develop coordination among METIs. A harmonious KM system creates a spiral which starts from individual and by sharing with others, covers whole organization and community. KM can establish the system which makes possible affective learning in METIs.
Interaction between Tacit and Explicit knowledge, creates the spiral of Knowledge-creation process emerges when interaction between tacit and explicit knowledge is transferred; it influences judgment, behavior and attitude of people (Nonaka, 1994) promotes connectivity, develops awareness and culture of sharing knowledge (Davenport et al., 1997).

The spirit to self-actualization is ultimate goal of education that is accomplished when learning goes beyond cognition; mind acquires “an indifferent flow of information”. Jerome Bruner defines learning takes place step-by-step; careful and informed thinking process evolves from intuitive thinking to analytic thinking, develops confidence, self-reliance and mutual dependency in learner and his intellect is communal, cultural values shapes his mind. (Takaya, K. 2008). B.F. Skinner (1953) learning brings change in behavior, which comes in result of experience. The process of reinforcement shape the behavior. (Eggen, paul,. Kauchak, don 20101, p.170) Learning involves change in habits, knowledge, and attitude. (Crow and Crow, 1963, p-1) The analytical learning, gratification of social needs of adults, collaboration and cooperation develops leadership qualities. According to Vygotsky human develops understanding through

Learning reflects through competence and skill. leadership is the combination of cognitive capailites and values which develop scail appraisal skill, problem solving skill and tacit knowledge (Zaccaro, et al.2003, P.106). the quality of leading others requires cognitive ability, self confidence, socailizinged power motives, risk propensity, nurturance, socail skill and values.

**Figure 6:** Cognitive capacities and social appraisal skills

![Cognitive capacities and social appraisal skills](image)


In affective education the process of internal change accelerates the process makes the learner well-adjusted and affectively developed person because during the affective education focus is given on internal change (Reigeluth, & Martín, 2013, p.485-487).

AE develops personal integrity arranges collaborative learning encourages human-to-human relationship. However molding students’ behavior has become important for computational teaching system. The perfect symphony of technology creates effective communication provides motivation to youngster and facilitates them in learning communication and skills (Alessi & Trollip, 2001, p. 380).
2.5 Summary
The AE deals with learner’s motivation, beliefs and attitude in context of MET students are adults they are Self-directory and motivated. They need guidance and support to develop their thinking. AE helps them in adjustment among multicultural, multilingual and multinational crew it is necessary to enhance affective development in educational process using effective educational tools and strategies because it encourages learner to strive for universal values. The advance technology is being used in METIs however ET need to use for internalization of values. Students are at responding and receiving level METIs system can develop characterization and organization of values. Affective education can develop soft skills though education technology. AE is the best interest of the individual and society however it requires ET for excellence in MET.
Chapter 3

3. Research Design and Methodology
The aim of this chapter is to discuss how the study was carried out in two maritime institutions. The chapter presents the mixed methodologies, brief introduction of qualitative and quantitative research approaches. The study also describes the procedure of data collection through questionnaire, interview, case study and observation. Furthermore, the ways of data analysis are defined as Likert scale and discourse analysis.

The research was carried out in World Maritime University (WMU) and Maritiem Instituut Willem Barentsz (MIWB). WMU, Malmo, Sweden, is an agency of United Nations. It was established in 1983 by the International Maritime Organization (IMO). It is an International Maritime Educational Institution where students come from all over the world for MSc, Ph.D. and other professional development courses (WMU, 2014). And MIWB, West-Terschelling, the Netherlands, provides higher maritime education; students come from other regions of the country to this academy for simulator training. There is a Maritime Simulator Training Centre (MSTC) that offers full mission ship simulator training. The institution is accredited by professional authorities and the Ministry of Transport and Education. In 2000, the institution celebrated its 125th anniversary, so in 2015, the institution will complete its 140 years. It is considered the most advanced training institution (MIWB, 2014). These two maritime institutions have distinctive identity one provides maritime education at international level and the next offers maritime education and training at national level. Therefore, the research found variety in responses of official, professionals and students where all belong to the maritime education.

3.1 Research approaches
For this study following research approach was used.

3.1.1 Mixed methodology
The researcher applied a mixed methodology for the study because it is a combination of qualitative and quantitative method and an integrating methodological approach which
establishes the overall research design provides comprehensive and convincing evidences (Creswell & Plano Clark, 2007).

The study encompasses the qualities of qualitative and quantitative research approaches to find the better understanding of the subject. The single approach could not provide clear evidence of the study because it deals with AE and ET that is combination of behavioral and physical science.

3.1.2 The Qualitative Research
The approach is concerned with social phenomena (Hancock & Ockleford, 2007); focuses on understanding the meaning of people have constructed, analyses their perception, interest and experiences using methods such as observation and case study. The findings are interpreted in narrative and descriptive form. The research begins with questions, finds the answer in the real world and builds block of information (Merriam, 2009). For this purpose, various methods of data collection are used for understanding behavior in the social, cultural and physical context. The typology has given in the figure: 1 that shows the qualitative data is obtained and analyzed.

Figure 7: Qualitative Data

![Figure 7: Qualitative Data](image)

The figure 1 indicates that qualitative data is obtained by audio, text and video that is analyzed by various methods. The qualitative analysis builds relationships of theoretical statements to existing fact (Merriam, 2009).

3.1.3 Quantitative Research
This is the method of collecting information from participants that are expressed in numerical form such as scientific surveys; their findings reveal the effect and the reaction statistically. In qualitative research, specific questions are asked in survey and the data is measured by rating scales.

For this study, the combination of qualitative and quantitative research approaches facilitates in providing explicit findings. By means of the following ways data was obtained from maritime institutions.

3.2 Research Tools:

3.2.1 Literature Review
The study collected the qualitative data through literature review and analytical interpretation of the text analyzing because literature review was the primary source of data and the application of ET for AE in MET is very limited therefore learning theories and use of contemporary technology was reviewed. The study could not find explicit studies on ED for AE in METIs however the literature review provided better understanding of the subject. Because literature review presents a logically argument, “a comprehensive understanding of the current state of knowledge about a topic of study” It “is a complex process that can be defined as “an interpretation of a selection of published and/or unpublished documents available from various sources…involves summarization, analysis, evaluation, and synthesis of the documents” (Onwuegbuzie, 2009). These strategies for interpretation the texts were used that can be practical measures in implementation of ET for AE in METIs.

3.2.2 Discourse analysis
For the study discourse of emails was analyzed. It was the analysis of language that is beyond the level of sentence; not only grammar, syntax, phonetics (phonology), parts of words (morphology), meaning (semantics), and the order of words in sentences (syntax) but combination of all. It is helpful in understanding leaners high order thinking in debate or in essays because discourse markers reveal listener interest and intention (Schiffrin, et al., 2001).
Basically, discourse analysis is a method for analyzing the way in which particular features of language contribute to the interpretation of the text in their many contexts. It is the way to investigates language in social cultural context, analyzing linguistic structure and contextual function (Barton, n.d). The method was helpful for the study to examine communication between administration of WMU and students.

3.2.3 Questionnaire
For the study web-based questionnaire was designed in Goggle form for data collection and sent to WMU and MIWB. This was the easy way to access large group of people of two institutions. The questionnaire is used for collecting information from a wider sample. The data comes in an object-oriented and formal way through questionnaire. A proper scale is used to interpreted data in a logical way that makes data explicit, unbiased, logical and precise. In the questionnaire, the context and instructions need to be given clear. Furthermore, the combination of open and closed questions increased the possibility of collecting high information (Hancock & Ockleford 2003).

The questionnaire was sent to professionals, scholars and students because they are belong to maritime education but influence maritime industry. They act significantly role their views are useful in maritime educational design. Their feedback gave a better understanding in designing educational policy for AE through ET. Those who belong to education can the shape the mind, behavior and attitude and those who belong to legal and administrative department can provide support for the sustainable development and expertise of operational department can execute the policy of AE through ET. Therefore questionnaire was sent to know whether people will accept the notion, adopt the change and apply the strategies for the using ET for AE in METIs.

3.2.4 Likert Scale
For the study, the items of the questionnaire were set at Likert scale frequency from low-level scale to high scale. A Likert scale is used for scaling responses in survey research or questionnaires to examine variation in opinion about the issue. When respondents respond to a Likert questionnaire item, their level of agreement or disagreement is evaluated on a symmetric agree-disagree scale. The range, firmly disagree _ disagree _ neither agree nor disagree _ Agree _ strongly agree, captures the intensity of their feelings for a given item. A scale can be comprised on some of the questionnaire responses over the full range of the scale. Likert scale is applied to the summed scale, and a Likert item refers to an individual item (McLeod, 2008).
According to the scale, the responses were evaluated on a symmetric agree-disagree scale. The range was set, strongly disagree _ disagree _ neither agree nor disagree _ Agree _ strongly agree, as shown in Figure 8

**Figure 8: Likert Scale**

![Likert Scale Diagram]

Disagree _ undecided _ strongly agree

Figure 8: The scale was used to evaluate the responses for the statements. (See questionnaire statements in Appendix A). The formula of mean, mode and standard deviation was applied using Microsoft Excel to get an average of the responses.

**3.2.5 Interview**
The author was seeking ways how apply ET for AE in METIs therefore it was necessary to ask directly to those who have been in METI and using ET for AE. Considering the requirement of study, an interview of training manager of WMIB was taken to understand how during simulator training learning outcomes of affective domain are achieved with cognitive and psychomotor skill. How interest and motivation of students are maintained and how their attitude is reformed. The interview was very helpful because the great deal of qualitative material comes from talking with people whether it is through formal interviews or casual conversations. The recording of the interviews provides the reality of the situation and understandings (Hancock & Ockleford 2003). The unstructured interviews lead to qualitative analysis; however, it may be a social desirable bias and self-fulfilling prophecy the former refers to provide social desirable answers and the next indicates prediction on personal beliefs (Eysenck, 2004, p. 4). The interview provided practical measures that can be applied in METIs.

**3.2.6 Case Study**
This was the main concern of the study to find out ways how ET can be used for AE in METIs therefore WMU was selected for case study where ET is used for students’ motivation and
attitude formation. The case study is commonly used in scientific research or psychoanalysis, examines a phenomenon within its real-life context. Data are collected on or about a single individual, group, or event, provides a recommendation for implementation. Data is collected by events, individual and group. In the analysis, it is important to care for that reported findings do not become subjective (Eysenck, 2004).

Since the study is related with behavioral and physical science therefore the study applies strategies of case study to collect data from WMU. In this institution, educational technology has been used for motivation, behavior formation and setting the attitude of the students.

3.2.7 Observation
For observation maritime institution “Maritiem Instituut Willem Barentsz (MIWB) West-Terschelling, the Netherlands” was selected (9-13 June, 2014). Observation was used to observe the trends that can bring change. An observation may be overt or covert, but it provides an opportunity for research to eliminate social ills or to set new trends in society; however, its reliability relies on interpretation of data (Eysenck, 2004). The observation was carried out during the field trip where a team of WMU students (including the author) participated in a simulator training course at the Maritime Simulation Training center (MSTC). The training was conducted according to STCW 2010 (MA) section A-1/6. For the study, an observation was practical experiences that develop better understating of the subject.

3.3 Presentation of Data
In the next chapter, The findings of questionnaire were shown in the following ways:

1. Histogram
2. Pie chart
3. Bar chart

The purpose of selecting figures and charts is to provide a holistic view of statistics. It provides better understanding of responses for ET in AE.

3.4 Rationale for selecting mixed methodology
A mixed methodology was used for the study to find out the answers of research questions:

4. What is the description and role of affective education in general and MET in particular?
5. What is the effect of contemporary technology on the affective domain in MET?

6. How can present/future technology (ies) be used to improve affective education in MET?

Although the literature review facilitated the study, the concept of AE and ET, use of contemporary technology for educational purpose and its significance in MET was reviewed in the light of previous studies and theories. The question helped in finding the views of professionals, scholar and students about ET for AE. The interview provided strategies for application ET for AE in METI and case studies, and observation showed the implementation of ET for AE in METIs. So by means of research methodologies practical measures were observed that can contribute in development of AE through ET in MET. The only rating scales or only literature review could not provide practical strategies for the study, therefore; mixed methodology was used which encompasses the most of the aspects of the study.

The following objectives were set to achieve using mixed methodology.

- To define the concept of the affective domain with the reference of learning theories and the significance of the affective domain in maritime education.
- To identify educational technology (ies) and its impact on motivation and attitude of learners.
- To evaluate the usage of technology in order to deal with the affective domain in MET

3.5 Summary

The author has discussed the research approaches, data collection methodology and the method of data analysis in this chapter. The next chapter interprets the findings of the data. The information will facilitate in analysis of findings.
Chapter 4

4. Analysis of Data
In this chapter, responses to questionnaires are reviewed analytically in light of learning theories and concept of educational technology and affective education. Findings of literature review, case study, interview, questionnaire and observation are given, leading to a discussion of a holistic approach to the use of educational technology for affective education in METIs, highlighting its possible positive outcomes.

Since the research area was affective education for assessment of the affective domain, attitude and motivation are observed (verbal and written). Since, there is no concrete model of affective assessment, the motivation of the respondents of World Maritime University (WMU), and Maritiem Instituut Willem Barentsz (MIWB) were assessed through questionnaire, and observation that can be helpful in teaching in METIs, in the case study, the role of WMU administration was observed using email analysis that helps in behavior modification of students. And interview was used for practical implication of ET for AE in METIs at training management level.

4.1 Questionnaire
The findings of the questionnaire were received from WMU and MIWB online through Goggle form. The questionnaire aimed (Appendix A) to examine the viewpoint about the technology of those professionals, scholar and students who belong to the maritime education. The questionnaire was divided into three sections: Section A determines the need and motivation of the people for the maritime profession. Section B decides the instructional design and strategies for learners and Section C finds the future perspective and comments of respondents.

4.1.2 Profile of respondents
The profile of respondents shows they are multicultural, multilingual and multinational. The respondents belong to following countries:

China, Kenya, Finland, South Africa, Madagascar, Netherlands, Norway, Jamaica, Malawi, Indonesia, India, Republic of Trinidad and Tobago, Uganda, Turkey. The respondents were adults and seniors they had a bachelor, master and doctorate degree. As shown in figure 9:
Figure 9 presents the professional profile of the participants that reflect the response of the questionnaire includes opinion of teachers, students, seafarers and those who have been working in maritime industry. Their opinion is important for bringing change in METIs. The students also belonged to different subject disciplines; however, they are all related to maritime field. Their professional areas are, for example teaching, seafaring, law, port operation, costal security, maritime administration and maritime HR management. Overall, the responses from survey indicated that respondent were from different region of the world however people provided positive feedback for the use of technology for AE.

4.1.3 Section A - Motivation for the maritime profession
Section A indicates the profile, interest and motivation of the respondents for the maritime profession. The responses were evaluated using Likert scale. In the questionnaire, the purpose of joining the maritime field was asked. The responses to the questionnaire were received are given below:

- To see the world and earn sufficient money
- The combination of all kinds of fields of expertise that is required to be a mariner, the diversity of the job!
- Fell in love with industry during internship. Maritime is always evolving and challenging.
- Family tradition, Willing to be free
- The working environmental is active and change every day.
- Visit the world and its people
- I want to develop country's maritime industry which has been dormant despite its great potential in the development of my country. A career in maritime is to equip me with
relevant professional skills that help me achieve my goal of contributing to my country's development.

- Easy to find a job.
- It was the best opportunity I have got after completion of my high school.
- Need for practical jobs and high paying
- Because it is challenging and I have always liked challenging jobs. Moreover, I love travelling especially in the ship and a maritime career offers me that opportunity.
- Not many females in this industry and i love the ocean.
- Love for sea and service to country
- Maritime has always been my career. But the most attracting facts that amazed me while I was at high school, firstly the beauty of the sea and the ocean. Secondly, I discovered that "Maritime" has no border. Within "Maritime", the entire world understands each other and it seems that they speak the same language. Lastly but not least, because of the technologies that are available and used in the maritime world. With these three reasons, I made my choice to head for maritime career.
- Exploring the world Chase a dream Always work
- Adventurous job, with decent pay and certainty of employment.
- I choose this type of Maritime career due to future prospect in development of Shipping and logistic in my country.
- Nice job covering all kinds of items.
- Looking for job opportunities within international education
- To get a wide technical knowledge to build on our future. Especially in the maritime world.
- I worked in in transportation industry
- My aim was to undertake a profession in HR after being an educator. I love working with people, trying to understand what motivates or drives them to do what they do, and helping them achieve their goals. The fact that i got a job in the maritime sector was a plus for me since it opened up opportunities for me to mingle with people of different cultures and nationalities. This helped me learn the nuances of different cultures and traditions at the same time.
4.1.4 Section B - Attitude of students towards technology

Section B of the survey explored the understanding of people and how much technology facilitates in the cognitive and affective domain. It examines the attitude of students towards technology and determines the instructional design and strategies for teaching. In questionnaire some cognitive and affective learning outcomes were mixed besides some questions were included which indicate drawbacks of technology in order to know how much technology facilitates in achieving the learning objectives and how it influences the behavior.

**Table 4** shows the main components of survey questions about student’s attitude towards technology.

<table>
<thead>
<tr>
<th>Main Survey Questions</th>
<th>Agree</th>
<th>Disagree</th>
<th>Undecided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Understanding</td>
<td>35%</td>
<td>0%</td>
<td>4%</td>
</tr>
<tr>
<td>Motivation</td>
<td>25%</td>
<td>0%</td>
<td>7%</td>
</tr>
<tr>
<td>Learning Involvement</td>
<td>25%</td>
<td>0%</td>
<td>14%</td>
</tr>
<tr>
<td>Access to Knowledge</td>
<td>28%</td>
<td>4%</td>
<td>7%</td>
</tr>
<tr>
<td>Collaboration</td>
<td>28%</td>
<td>0%</td>
<td>14%</td>
</tr>
<tr>
<td>Professional Skill</td>
<td>23%</td>
<td>11%</td>
<td>11%</td>
</tr>
<tr>
<td>Replication</td>
<td>20%</td>
<td>14%</td>
<td>25%</td>
</tr>
<tr>
<td>Self- Esteem</td>
<td>23%</td>
<td>4%</td>
<td>18%</td>
</tr>
<tr>
<td>Creativity</td>
<td>18%</td>
<td>14%</td>
<td>11%</td>
</tr>
<tr>
<td>Sense of Autonomy</td>
<td>28%</td>
<td>4%</td>
<td>21%</td>
</tr>
<tr>
<td>Enjoyment</td>
<td>20%</td>
<td>4%</td>
<td>11%</td>
</tr>
<tr>
<td>Quality Standards MET</td>
<td>28%</td>
<td>7%</td>
<td>4%</td>
</tr>
<tr>
<td>Decision Making</td>
<td>28%</td>
<td>7%</td>
<td>18%</td>
</tr>
<tr>
<td>Technology dependence</td>
<td>35%</td>
<td>7%</td>
<td>11%</td>
</tr>
<tr>
<td>Feeling of Isolation</td>
<td>20%</td>
<td>21%</td>
<td>11%</td>
</tr>
<tr>
<td>Positive Behavioral Change</td>
<td>30%</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>Constructive Attitude</td>
<td>20%</td>
<td>14%</td>
<td>18%</td>
</tr>
<tr>
<td>Personal Integrity</td>
<td>23%</td>
<td>4%</td>
<td>21%</td>
</tr>
<tr>
<td>Knowledge of values</td>
<td>30%</td>
<td>7%</td>
<td>7%</td>
</tr>
</tbody>
</table>
The Table 4 shows adaptability and acceptability in using technology for educational purposes. Technology can be used for Quality standard system in METIs 35% respondents accepted. It can also be used for Positive behavioral change 30% ensured. Technology enhances learning involvement 25% conformed; it also develops decision making ability and motivation 28% accepted. The use of ET supports in achieving learning outcomes.

The findings reveal that technology plays an active role in the learning process. It is inferred that ET can improve learning process in AE if it is applied in METIs. The figure 10 shows the complete responses in form of graph. The Likert scale was applied to find the following results.

**Figure 10**

The graph shows the technology is used for various purpose its effective use can improve learning and attitude. The questionnaire identifies ten specific components of AE that can developed though ET such as: decision making ability, positive behavioral change, constructive attitude, personal integrity, knowledge of values, motivation, collaboration, self-esteem and sense of autonomy. These are key elements in AE contributing in the personality development.
Figure 11: shows strong confirmation of the statement that ET increases motivation of students.

2. Integrating technology into class activities increases the motivation of students.

Figure 12: shows technology brings positive change in behavior.
**Figure 13:** shows technology can help in decision making.

![Bar chart showing technology provides freedom of choice in decision-making activities.](image)

**Figure 14:** indicates if ET is applied for education can develop decision making ability. This also enhances problem solving skills.

![Bar chart showing technology educates learners to adopt constructive attitude to deal with illicit drug and HIV.](image)
Figure 15 indicates technology can be used for constructing positive attitudes in learners such as drug AE helps in setting attitude and ET can influence the behavior. Apart from these qualities (see Appendix B). It shows strong confirmation if technology is used for developing collaboration, cooperation, value, personal integrity and self-esteem. ET in conjunction with a well developed knowledge management system facilitates an active learning process. The overall effectiveness of instructional design is highly dependent on administrative resources and support structure.

Figure 15 these four components were taken from questionnaire observing differences. The figure shows an active learning process where knowledge, collaboration and sense of autonomy take place in the learning process. Motivational is situational so it varies. Technology influences on human behavior therefore it is necessary to use ET for AE to get optimum positive results.
In brief Figure 16 shows contribution of technology in development of behavioral traits. Influence of ET in AE, form responses of questionnaire some components were selected and combined together to see the holistic picture. The main characteristic of AE as shown in Figure 6 are developed by ET it gives impression that AE by means of ET can developed the strong positive personality although each characteristics is comparatively cognitive learning outcome is smaller however small input of AE can bring positive change in behavior.
Figure 17: Effects of Technology

![Effects of Technology Chart]

Figure 17, shows the responses that help in designing effective instructional plan the excess use of technology can create dependency, isolation replication it can curb creativity.

4.1.3 Section C – Comments for future change

In section C, there are some critical comments that indicate that technology is only a tool and its proper use makes it useful. The section shows the responsibilities of METIs, instructors and assessors to make ET more useful for AE. The summary of responses is as follows:

“Technology is an effective way of proper assessing the learning ability of a student… without real practical hands on training can be too routine for the student and can minimize their ability to cope with real life scenarios.”

“Technology has the potential to reduce the social interaction between learners as too much reliance is placed on social media and other learning tools”.

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“Technology is very critical in affective education due to the availability search engines and as a result students are able to access multiple learning materials with different perspectives. It is my considered”

“The use of technology is highly useful in the maritime education and training process.”

“Overreliance on technology is a high risk in education and in shipping”.

“Technology can be helpful to the extent to deliver the content of the subject …However technology cannot create the content required for achieving the competence standards”.

“Technology is advancing and it has brought its setbacks as well. The human race should work together collaboratively and peacefully to combat these effects to avoid polluting the entire environment that will”.

“Technology results in dependency on technology may reduce creative thinking by promoting reliance on technology”.

4.2 Case study
This is an example of affective administration that establishes AE through ET in METI.

Time period: 2013 to 2014
Students: 25 to 45 years (female & male) multilingual, multinational and multicultural

Situation: Communication between administration and students. Students were connected by Gmail to each other and with the administration of WMU. During the research around 400 samples (emails) were collected and in response to the emails, the reaction of the students was thoroughly checked.

Context: In the beginning of the Msc program 2013, students started receiving email messages and information from the WMU administration about banking, social events and bus routes. It was a routine practice to guide students into a new culture and help them in adjusting in a new country. The researcher started observing students’ positive response to emails. If the mail from the administration said “no heels” the female students would wear flat shoes. If it said “warm clothes” the very next day students were in coats. At the same time it was observed how the same group did pay comparably less attention when teacher asked them to “be on time”. The email influenced the students’ behavior and changed their attitude.
(The text of the mail is attached in Appendix B)

Table 5: Emails

<table>
<thead>
<tr>
<th>Email</th>
<th>Subject Matter</th>
<th>Main features (Thematic Analysis)</th>
<th>Main components of Krathwohl’s Taxonomy &amp; Affective Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text 1</td>
<td>Picnic to Soderasen National Park</td>
<td>Shows concern with students Establish sense of care Instead of I and you, “we” is used. Provides guidance, role play and team work in real life Social ethics “recycle the items” protection of environment and wild life. Awareness of dress</td>
<td><strong>Receiving</strong> Social interaction, social ethics Awareness, Recognition of responsibility Improving human relations, Manners Proactive attitude Punctuality Self-discipline</td>
</tr>
<tr>
<td>Text 2</td>
<td>Reply to picnic students</td>
<td>Response of event</td>
<td><strong>Responding</strong> Positive reinforcement, Students’ active performance Willingness to respond</td>
</tr>
<tr>
<td>Text 3</td>
<td>Information about bank account</td>
<td>Instructions &amp; Information direction &amp; clear map</td>
<td><strong>Receiving</strong> Selective attention. Developing sense of responsibility Self-discipline,</td>
</tr>
</tbody>
</table>
| Text 4 | Dress code for annual dinner | Following students approach considering their concern. Provided issue with solution. Managing resources | Valuing  
Mannerism  
Developing self-identity  
Social identity |
| Text 5 | Instruction for welcome dinner | Reminder. Instructions | Valuing  
Self-discipline  
Punctuality & manners |
| Text 6 | Weather forecast (Autumn) | Advice  
Shows concern with students health Words “all” and “us” are used the sense of belongingness and care. | Valuing  
Developing sense of security & trust someone cares them |
| Text 7 | Malmo update | Instruction about “All Saints” | Organization  
Teaching social ethics  
Accepting social diversity  
Care of neighbor, care of others |
| Text 8 | Instructions for choir | Choir Song in mp3 lyrics  
Instruction and guidance for extracurricular activities | Value & Organization  
Social group participation Learning new skills |
| Text 9 | Feedback of choir | Reinforcement  
Appreciation | Responding  
Enjoying social group participation |
| Text 10 | Storm warning (winter) | Advice to prevent students from windy weather. | Organization  
Recognizing dissonance |
| Text 11 | Precaution against storm | New update of bad weather continuous care and concern with students | Organization  
Developing ability to cope with difficulties.  
Adjustment and behavior modification, make repose to problem (in bad weather using suitable costume) |
4.3 Observation
This was an example of affective management that author came observed in MIWB. The following information was collected to know about the institution however in the institution focus was on observing management how it can support ET for AE in METI:

Simulators:
2 full mission bridge simulators, 1 full mission ER simulator, 16 part task simulators, 8 GMDSS simulators, 1 High Voltage full mission simulator, 4 hydraulic full mission simulators, 1 electro laboratory, 4 refrigerating simulators.

Number of students in courses
- 1000 students simulator center
- 50 students in MIWB students
- 600 course participants from shipping companies
- 200 students from other schools

Name of courses that are being provided currently
High Voltage, Medical Care, Medical First Aid, Dynamic Positioning Induction, Dynamic Positioning Simulator Course, Dynamic Positioning Sea Time Reduction Course, Environmental Awareness.

Simulator training is conducted according to STCW 2010 in METIs. The author observed how AE is being transferred through ET. During the observation simulator assessment procedure was observed. The assessor was at a distance, allowing students to take decisions and to solve unexpected problems. He observed their progress, listened to them carefully, recorded their progress and addressed the error and made good decisions during the debriefing time.

**Figure 18:** Simulator Assessment

![Simulator Assessment](image)

Source: (Pim Warner, 2014. The Netherlands, the photo was taken and published with his consent)

In the photo, the training manager is observing the performance of 4 teams who are working on simulators separately in different rooms. He listened to the students by voice recorder, communicated with them by a portable two way radio, and watched them by camera. He observed their gestures and team coordination of the students; he recorded their progress during practical work and at briefing time. He discussed the errors and mistakes of each group and asked views and comments of students to know the rationale of their actions. During training, students’ anxiety, confidence and coordination are observed keenly.

This is routine practice of the instructors in the institution. Assessors are supported by technical staff. Assessors shared the record progress and feedback with others in order to manage unbiased
assessment. The simulator activities were according to the prescribed criteria; however, the significant elements of the simulator training were:

- Observing behavioral markers & operational skills
- Maintaining collaboration and coordination during training with team members
- Practice of decision making ability in unexpected difficulties
- Harmonious communication with the assessor through walkie-talkie
- Errors and good decisions were discussed in debriefing
- Feedback verbal and written

The significant aspect of the institution is its knowledge management system. The ET is being used with KM culture. Seniors share the knowledge to junior professors and they transfer knowledge to young students of the country. The institution is maintaining knowledge sharing culture using ET. During training of young generation AE is being focused in order to examine work performance author participated in simulator training course.

**Figure 19: Simulator Training**

Figure 19 shows that the subject is being guided by the assessor; however, opportunities were given to her to take her own decisions and resolve unpredictable problems using her intelligence. It does not matter whether the person is a man or a woman because to handle
technology only a smart mind is required for its effective and constructive use. Furthermore, affective education sets the values in the learner's mind which can help in taking decisions in order to deal with social or professional problems rationally, effectively and affectively. During observation in MIWB, manners of young under trainee students were observed in the canteen, in the classroom and in the lounge. They interacted with other groups who came from different regions of the country displaying courtesy, welcoming gestures, sharing experience and knowledge with each other. The students’ conduct was revealing their self and cooperative discipline. It was behavior which shows internalization of values. Institutional explicit knowledge becomes explicit knowledge of the students.

4.4 Interview
The interview of Training manager was taken to know what practical measures need to be taken to use ET for AE. The interview was an important aspect of the research because real knowledge lies among people. He told author that he was the seafarer, passed out from the same institution now working as a training manager. His students inspire him. He is still in the process of learning acquires knowledge from his senior colleague and shares with students. In teaching he sets values in students sharing his sea experiences because he thinks without certificate of competence, life can be passed but without values and personal integrity life is not a real life. He is working as a leader guiding and mentoring students. They contact him always for guidance. He coordinates with his fellows to make the system effective because he believes that cooperation and coordination with colleagues is the real essence of a successful system. In the management system of METIs competent and affective leader are required who can establish AE through ET in METIs.
4.5 Discussion

The aim of the section is to discuss the findings of the data analysis. The findings were analyzed in the light of literature review. The empirical data was collected through various means: questionnaire, interview, observation, case study. In fact ET is hardly used for AE in METIs therefore author was seeking ways how ET can be used for AE in METIs. For this purpose various research tools were used. The opinion of professors, students and seafarers can help in designing the curriculum for AE through ET; opinion of training manager can help in executing effective measures, and observation of administrative strategies can help in implication of policy for AE through ET in METIs hence the entire system was observed at different places. If ET is used successfully for AE it can be applied in METIs and the application would be beneficial for all students all over the world.

4.5.1 Questionnaire

Section A Motivation for maritime profession

The findings indicate that the respondents who belong to maritime education are highly motivated for their profession. ET for AE can be used for positive attitudes and guidance of highly motivated people of maritime industry. As emails revealed ET facilitates leaners in social adjustment that proves ET can be utilized for affective domain.

Section B Attitude of students towards technology

In METIs, students are adults and professional. They are highly motivated and enthusiastic a supportive environment can strengthen their motivation and attitude. Furthermore, they preferred “change”, so a fixed pattern of teaching may reduce their expectancy for success in MET. ET is strong factor that provides competence and stimulation and AE satisfies spiritual and intellectual needs, develops attitude and provides strong reinforcement. Findings indicate respondents are highly interested in enjoyment and their dependency on technology is higher. The situation requires AE that would set the attitude for positive use of technology in learning process.

For teaching and training, technology is already placed in METIs for subject understanding. The same technology can be used for AE, it can shape their attitude and build decisions-taking and problem solving skill. ET accelerates the learning process and AE influences their attitude. ET
improves the learning environment, collaboration, cooperation and interpersonal skills. ET with AE can improve motivation, induces values and reduces dependency.

As per findings in METIs, people accept technology for cognitive and affective development in learning process. If practical measures are taken at institutional level for AE, so people from administration to class level will get the benefit of AE by means of ET in METIs.

The use of ET for AE in METIs would not be imposition of new rule but an alteration in teaching and learning approach of MET. The change in MET is acceptable as finding indicates in METIs. Technology in compliance of STCW95 as amended in 2010 is widely used for teaching and training purpose however, students are still at the stage of receiving and responding level. The maritime profession requires minimum qualification but it does not refer minimum intelligence. Students can acquire metacognitive knowledge (MK) if ET is effectively applied. They will learn how to pursue knowledge how to integrate with their work and how to apply in their personal life to resolve issues (Krathwohl, 2002). AE through ET is simple mode of guidance and mentoring.

The significant aspect of the questionnaire is, it shows acceptability of teachers and students they confirm positive aspects of technology in MET. However, it should not be used only for drill exercise or closed loop instructions but for open-loop objectives. Students should come from conceptual level of knowledge to MK and from receiving level to self-actualization level. The process can be effective if students gain approval, appreciation and gratification of social and intellectual needs. ET, with teaching techniques, AE can develop critical and creative thinking and soft skills. For the purpose, AE by means of ET can be an effective in METIs.

The first section of the questionnaire revealed the motivation and interest of people for seafaring and the maritime profession is still high. It can be inferred that people are intrinsically and extrinsically motivated for seafaring. People are still passionate for seafaring. The findings facilitates in need analysis for developing instructional design. It also indicates that using ET for AE can develop self-esteem, self-confidence, self-efficacy and self-discipline during training. In METIs students are adults they are not just product but individuals therefore values should be incorporate in their training and their attitude should be examined through observation and discussion. Although there is no fix assessment model empirical data suggested that class room
observation, students’ motivation and positive attitude can reveal their internalization and organization of values. AE focuses on internalization of values and maintains motivation and interest of students in learning. It promotes self-efficacy, self-discipline and confidence that can be maintained through ET.

The response of the questionnaire develops understanding that ET for AE in METIs is worthwhile. In the questionnaire, the word “technology” is used deliberately because the purpose of technology changes the name whether it is for instructional, educational or leisure. When students acquire knowledge they learn values and attitude also. AE sets the positive attitude and values during the learning process. In METIs, Knowledge is examined in class their attitude and values are ignored during MET. Their attitude will ensure safety culture (Manuel, 2005). Therefore, it needs to be developed at the class level so that they can apply their knowledge in their profession for welfare of all. If ET is used for knowledge transformation ET can be used for setting positive values in behavior so AE need to be incorporate with other subjects using ET.

The findings revealed that there is not much difference when technology is used for the affective or cognitive domain because these two domains are overlapped and intermixed. Taxonomy separates them however learning influences human behavior and behavior influences learning consequently it affects action.

Findings indicate people rely on technology although ET is useful; human relations should be maintained throughout the process. The healthy human relation in an institution improves the quality and amount of academic work, increases the attendance of students and motivate for the subject.

It proves that ET can achieve the objectives of the cognitive and affective domain if it is applied in METIs with AE it can be helpful for developing soft skills in adults during MET. It is effective and economical way to develop non-technical skills in MET.

ET increases motivation of the learners and decreases the anxiety (Wlodkowski 1988, p-4-7). When learners are highly motivated they learn faster. If learning activities are based on positive approaches and values are arranged in class teaching, these virtues may become a part of their behavior. ET provides stimulus and AE gives understanding of values.

In METIs students are technology gives them life exposure they acquire knowledge from all resources and surrounding environments of the society using perception, intuition, intelligence
and critical thinking. They are intrinsically motivated to learn because their experiences satisfy their quest of knowledge and their strong will generates their interest in knowing something new. They learn in life situations and analyze their own experiences.

One of the major drawbacks of ET is the over reliance on technology as finding indicates. AE reduces over dependency and develop positive attitude and constructive behavior to use technology for constructive work. Excessive use risks creating a gulf between the teacher and students, and can curb creativity. Effective planning and observation may decrease the side effects. The purpose in METIs is to provide AE with subject knowledge that promotes students’ creativity and cognition. AE is possible because of affective instruction. It may bring change in behavior of learners. In the challenging seafaring profession AE can eliminate socio-cultural ethical differences may mitigate if affective instructional methods are designed carefully (Schoely, 1994, p.212). For teaching in MET, optimistic approach, concepts of behaviorism may be applied to bring change in attitude. AE through ET can develop metacognitive and high order thinking so that they may be able to take decision and resolve their problems in the future they will expose to cultural and environmental differences. AE through ET can develop interpersonal skill as finding indicates through mail a supportive relation can be made. It can avoid isolation also and develop social adjustment.

Because an affective classroom environment provides them a safe zone, maintains their self-esteem and autonomy during the learning process; moreover, it shapes their min-set to response to the real world. It creates critical and creative thinking and it develops collaboration and self-esteem. Seafarers are trained for practical work; therefore; values need to be infused in their personality. The maritime industry requires strong personality. METIs require that the concept of modern adult learning theory should be incorporated in order to change in the behavior of seafarers. As mails were used to give awareness the same method can be used in METIs to provide them awareness and knowledge of values that will develop internalization and valuing other culture. It will develop respect of different culture and beliefs. The awareness gives knowledge and knowledge helps in internalization. The respect of cultures is the prime objective of AE; it can develop interpersonal skill in under trainees.

The motive of observation was to know how administration helps students in social adjustment and attitude formation. Students were exposed to new culture and new environment they need support in adjustment among colleague. ET was being used for AE for attitude formation. Earlier
students were at the stage of receiving and responding then they come at level of organization and characterization. They adopt new environment they begun to respect new culture and they start supporting each other

Interestingly, students responded more actively to mail from the administration than from friends’ mail. The responses were being observed because all the students were connected to each other. Although computers and ipads were used, care and affection were shown towards the students and they were for example always addressed as “dear students”. The sentences were short and exclamatory marks, expressions, pictures, photos, maps were used. The communication was very spontaneous and natural. The correspondents built interpersonal relations between the WMU administration and students. They may contact the administration in case of any problem. The technology developed a trustworthy relationship between students and administration.

This was indirect AE and assessment because the most of the mails were about care of the students and respect of others’ culture and tradition. It developed a civic sense, increased motivation in learning, enhanced positive attitudes and spread awareness of self and others. In addition, it suggested a positive attitude and manner in public, guided the dress code and advised care of self and others in tough weather. The text increases awareness, modifies behavior and develops collaboration. The assessor was passive and teaching was indirect; however, the impact was strong and deep. The technology can be used in METIs as cost is negligible; however, it requires an intelligent mind and kind heart.

The texts were evaluated using discourse analysis in view of Krathwohl’s concept of the affective domain including five categories: receiving, responding, valuing, organization and characterization (Schoenly, 1994, p. 209).

4.5.2 Case study

It shows relation with students does not end after the class nor institution is to provide information but through education it transfers the personality it may possible in the class or outside the classroom using ET for AE information about universal values as respect of graveyard and local traditions can be transferred to students. AE as in WMU, is continuous flow of information that develop understanding and recognition it should not be end because human personality develops gradually and the process of internalization takes time however these values
are long lasting. The assessments of valuing cannot be marked in numbers these students will work for the welfare of all if the AE is transferred effectively at institutional level.

4.5.3 Observation
The significance of the activity is not an advanced simulator but how the ET is being used. Students were the reflection of their teaching and learning they were exhibiting the hidden curriculum of the institution. Their self-discipline and confidence were reflection of their learning. AE transfers the institutional values in students. Technology has efficiency and accuracy but human beings have intuition, experience, decision-taking ability, high order of thinking and wisdom; therefore, a knowledgeable mind is required to operate the machine. Thus, in those countries, where regimental training is being observed to maintain discipline in seafarers, it reduces confidence, interest and motivation. There ET can transfer AE effectively.

4.5.4 Interview:

The essence of the interview was as he mentioned explicitly that without Certificate of Competence in life is possible but without values life is not a real life indeed. A good person can be good officer we (they management of the institution) focus on personal integrity. The institution maintains the culture of knowledge management we transfer our knowledge to our young generation. For the best performance and good repute of the institution and country we prefer valuing and internalization.

4.6 Summary
In the following chapter, conclusion has been drawn observing the results, which can be helpful to use ET for AE in METIs in developing countries.
Chapter 5

5. Conclusion and Implication

5.1 Introduction

The aim of the chapter is to conclude the findings with recommendations, suggestions and proposals for further research.

The study aims to find the influence of ET on AE in MET. In this regard, empirical data was collected, mixed methodology was used to understand how ET can be applied at teaching, learning, administrative and managerial level in METIs. These various research tools were applied; not to evaluate the entire system but to find out only effective measures for implication of ET for AE in METIs. Previous research indicates the importance of affective domain in METs however procedure has not been defined so far (Manuel, 2005). STCW 95 recommended the use of ET but it has been used for operational skill. This study recommends that ET need to be used for AE in METIs. AE develops motivation, beliefs and values; it can develop cognitive, affective domains and improve skills. Without affective approach ET is ineffective it produces only products, ET with AE develop individuals students can be good leaders. AE cannot be influential without ET. So combination of ET and AE can develop soft skills in students. Positive and constructive approach is required to use technology in METIs.

This is dire demand of the profession to develop soft skills in seafarers. For developing soft skills research has been conducted in aviation community for flight crew members that aim to develop Co-operation, leadership, managerial skills, situation awareness and decision skill. The idea can be applied in MET to improve the performance however procedure cannot be applied. Seafarers are highly motivated, extrovert and adventurous. In MET students are adults in aviation age group is different. Seafarers are different from common students they are ready to quit their belonging and social life for cause, give priority to professional responsibilities and sacrifice their will and comfort for long. They spend long time in sea experienced isolation and cultural difference. Students require AE; ET provides learning effective. Supposing ET is applied for AE in MET that will infuse optimism, enhance motivation, and add universal values in behavior of seafarers. It is process of mind transformation, changing thoughts and approach. Currently
METIs are using high technology, advance methods of teaching and students. They are in thousands in METIs who are undergo training all over the world. If ET is used for AE in METIs it ensures that thousands of people accomplish positive approach, higher order thinking, self-actualization, self- efficacy and leadership skill. MET will develop influential leaders for the world. The process of developing soft skill through AE using ET can be more effective and economical as compare to aviation community. Maritime education uses sophisticated and advance technology in MET. So, technology is already in METIs, work force, as experienced instructors are already there only approach of teaching and training need to be change. It does not require formal amendment in any documents but strong will and cooperation. AE through ET requires change in regimental training, a paradigm shift from knowledge comprehension to metacognitive knowledge, overt behavior to self- actualization, and discipline to self-discipline. It requires higher self-esteem, self-confidence and pride for the maritime profession.

The study found the answers of the research as given below:

**Question 1:** What is the description and role of affective education in general and MET in particular?

The answer to the first question of the research can be found in the literature review section B and C. for further clarification in data analysis section B give the practical example. There role of affective education has been discussed. The finding reveals that educational technology can be used for AE. As a result, it can develop soft skills, namely team work, cooperation, leadership and effective communication. In addition, it may help learners to cope with social ills.

**Question 2:** What is the effect of contemporary technology on the affective domain in MET?

Literature review section B defines the application of contemporary technology in METIs for further elaboration in data analysis observation of simulator training provides the answer.

**Question 3:** How can present/future technology (ies) be used to improve affective education in MET?
The influence of technology cannot be measured on behavior statistically. However author discussed in “Discussion” how technology can improve AE. For this purpose, technology is not the essential tool but human mind. Human will and skill can use the technology effectively. In this regard, MET teachers can play an important role in development of AE in METIs. They can set students in the process of internalization if they add values and use ET for AE.

The research study is based on the most developed METIs where high technology is used for providing knowledge of values. However, for AE high technology is not the main requirement only simple instructional technology can develop affective domain in MET. ET, tool and teaching techniques, can enhance affective learning outcomes and develops soft skills. Learners need continuous input in forms of mentoring, guidance and counseling that can help in internalizing the values. These are following essential requirements to improve affective domain through technology:

- A paradigm shift in teaching approaches to seafarers considering their personal and professional demands
- Providing a supporting learning environment for cooperation and collaboration
- Reinforcing positive attitudes
- Promoting supportive environment which maintains self-esteem, self-discipline and self confidence
- Engage in constructive and creative work

### 5.2 Summary of the study

This research study shows a significant positive outcome in influence of ET for AE. The evidence strongly suggests that ET, such as ICTs, computers, web and multimedia should be used for AE in METIs because its influence is profound. Young seafarers are fascinated by advanced technology, so they want innovation and creativity in their teaching and training. The effective use of ET will increase their motivation and interest in studies; furthermore, it will develop interpersonal skills, problem solving abilities and leadership skills. It will help them in social adjustment and dealing with harassment. Moreover, in the future it will help them to deal with social issues, the effective MET requires learning in three domains: cognitive, affective and
psychomotor, thereby seafarers will be able to perform, and technical, operational and managerial tasks.

The research study was also successful in determining that ET for AE in METIs can improve the learning and learning environment. It will improve the repute of the maritime profession and rapport of the institution. In summary, the study has shown that educational technology plays an important role in affective education and it is essential for METIs.

5.2.1 Findings
The research probed the influence of ET in AE which may be applied in METIs. The research found people’s views and common practice of two institutions: WMU and MIWB, where technology has been used to for educational purposes. It promotes collaboration, communication and cooperation. However, the research could not find a concrete affective curriculum model of MET where ET is being used for AE in METIs. The affective domain is embedded in STCW 2010; however, it is not explicitly addressed nor evaluated like other operational skills. Leadership qualities are incorporated with managerial skills; however, it is needed to specify behavioral markers for under trainee seafarers. It was the demand of the maritime industry and not an amended official document to improve MET but to change the teaching approach and learning environment in developing self-discipline, self-confidence, self-esteem, self-efficacy and self-actualization.

5.3 Conclusions
Technology has influenced the social-cultural sphere, political-administrative arena, learning domains or sport activities. Technology has brought tremendous change all over the world and the process of change is in process because technology is being used widely in education for creation and collaboration, design and development, innovation and invention. Technology in teaching and learning requires high cost and enormous investment. It is a useful tool for cognitive learning; it may be a powerful model of AE. Technology is an effective tool when it is used intelligently. It may bring positive behavioral change if instructional methodology is designed carefully. Hence, people interaction and collaboration enhance skills and competence. Technology is a tool for learning real wisdom, and knowledge can be shared by affective education. Seniors mariners may transfer their experiences, wisdom intuition and advice by knowledge management and CBT to young people.
For simulator operational exercises, specific objectives and suitable activities similar to shipboard tasks should be selected avoiding internal and external interference to achieve optimum outcomes otherwise validity would not be achieved. Furthermore, during the debriefing section a questionnaire may be given to students to check their cognition and affective development.

The classroom environment provides them a safe zone, maintains their self-esteem and autonomy during the learning process; moreover, it shapes their mind to respond to the real world. In addition to creating critical and creative thinking, it also develops collaboration and self-esteem.

Experienced officers may transfer their knowledge using inferences, intuition and cognitive learning which technology may facilitate in transferring knowledge to the younger generation for sustainable improvement in MET. The effective instructional methods may improve the productivity. MET administration may provide considerable support to staff and students and the KM devices can be used at optimum level to enhance the productivity. The following practices can develop affective technology through ET:

Theory and experience of seniors: To develop cognitive understanding, analytical and creative thinking.

Trends: To shape human behavior and form affective attitude for proficiency and excellence in profession and among professionals.

5.4 Implications
Establish knowledge management system with Global MET and among global METIs to provide “effectiveness” in MET. Earlier, focus was given on technical aspects but now attention should be given to management and operational sides.

ET can improve positive attitudes, motivation and values. A harmonious connections among METIs need to be established through ET by sharing knowledge and culture.
Bangladesh, China, India, Iran, Pakistan and Sri Lanka may develop strong connections through ET to improve MET considering the cognitive and affective domains. The regional forum of METIs may bring substantial improvement.

5.5 Future research
The research was on “influence of educational technology on affective education in the context of METIs, so the future research would be on “Affective education through educational technology for on board seafarers” because the process of affective education needs to be continued through advanced technologies whether seafarers are in an academy or on a ship. The affective education would maintain their inner values, motivation, self-esteem and dignity. It will also support in developing soft skills, such as leadership, team work, cooperation and effective communication.

5.6 Summary
“If you live long enough you will make mistakes, but if you learn from them, you will be a better person. It is how you handle adversity, not how it affects you; the main thing is never quit.”

Affective education develops the characteristics to deal adversities and challenges.

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Affective domain | Characteristics          | Simple feelings & immediate reaction | Complex emotion & ultimate action/response

WMU. (2014). retrieved from: http://wmu.se/
<table>
<thead>
<tr>
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<th>Learner's sensitivity to the existing stimuli</th>
<th>Feel</th>
<th>Pursue</th>
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<td>Capture</td>
<td>Perceive</td>
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<td>Allow</td>
<td>Enjoy</td>
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<td>Cooperate</td>
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<td>Characterization about life</td>
<td>Conclude</td>
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<td>Practicing and acting values</td>
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**Table: 1 Affective domain hierarchy simple to complex emotions**

Table: 2 The use of technology for cognitive and affective domain

<table>
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<tr>
<th>Cognitive domain</th>
<th>Affective domain</th>
<th>Technology for educational purpose</th>
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<td>Respond</td>
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<td><strong>Feedback:</strong> digital comments</td>
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<td><strong>Video:</strong> Snagit</td>
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<td><strong>Presentation:</strong> Aninoto, Powtoon, Prezi</td>
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Appendix: 2 findings:

Affective teaching through technology:

**Values:**

**Colaboration and cooperation:**

**Personal integrity:**

Self-esteem:
Appendix: 3 (Emails):

Text:1
to Class, S14 13/09/2013

Message to students who have signed up for the

*Picnic to Söderåsen National Park*

**Times:**
we leave Henrik Smith at **11:00**. Probably back by **17:00**

**What to wear**
Comfortable clothing! Shoes you can walk in! Make sure you are warm enough for some hours outdoors. The forecast is for 21 degrees but maybe misty.

**What to bring**
Food. Something to drink. Umbrella?- maybe as insurance against rain.

**What we will do**
I have chosen some team leaders who will organize teams of five or six students, with the aim of mixing up the nationalities. There will be a “Sustainability Quiz”, a hike (easy!), and a couple of team competitions. The winning team will be photographed holding the “WMU Sustainability Cup” (which we then recycle for next year!)

**Please note:**
We are going to a National Park where there are strict rules:

- Absolutely no litter is to be left behind
- No damage to the trees and bushes
14/09/2013

to s14,

Dear picnic students,
Thanks everyone for a good day. Hope you enjoyed it as much as I did.

Sorry the buses got separated. We'll have to find a way of photographing the winning team with the "Sustainability Cup" early next week.

Enjoy the rest of your weekend,

...................

Sent from my iPad

Feedback, Communication through iPad to personal computer of students but close connection heart and mind of students.

· Leave the wildlife alone

Looking forward to it!

See you tomorrow,
Message for newly-arrived students

BANK ACCOUNTS

Many of you are now receiving letters from Nordea bank, which indicates that your accounts are almost ready to use. I know the letters are in Swedish! Please do not let this bother you. Just keep everything you receive and we will sort it out together.

There are a couple of things you need to do.

Please look at the sample letter I have attached to this email. When you receive this letter, there are two numbers you need to give to me. The “kundnummer” in the upper right-hand corner is your customer id number at Nordea bank. The “kontonummer” further down is your account number. Please give me or Susanna both these numbers, either by email or by bringing the letter to us to copy. Fellowship students: No numbers to ........= No money from ........... 

Sooner or later you will also receive advice from the post office that your bank card is there to collect. The notification is a small slip of paper with the post office symbol on it. The post office agency you usually need to go to is located inside the “Hemköp” supermarket, just opposite the Triangeln shopping centre (see map below). Take your passport to identify yourself when you go to collect your card.

When most people have their bank documents, cards and codes, I will invite you to a session where I show you how to log in to the internet bank, so you can check your balance. PLEASE do not try out your cards and codes unless someone who knows what they are doing is there to help you. If you start to use them incorrectly, your account will be locked down and this will create problems for you.

Best wishes as ever

..................
to S14

Hi

further to my announcement at the end of class this morning, I forgot to mention the all-important aspect of dress code for the Dinner next Wednesday.

This is one of those golden opportunities to represent your country by wearing your national dress! It makes the dinner such a spectacular occasion.

However, if - like me - your country is boring and you don't have a national costume, then business dress is fine.

Cheers all,
Welcome Dinner, 16 October, 6pm

Dear students,

just a reminder about the Welcome Dinner tomorrow night, 6pm at the Malmö Town Hall. The town hall is on the big square (Stortorget), opposite the medical clinic. Close to Nordea bank. Close to Centralen. Easy!

Some pointers:

As you know, in Sweden it is rude to come late. Please make sure you are there on time. There will be a welcome speech from the Mayor and we all need to be in place for that.

This will be a chance for some of you to meet your host families for the first time. I will email students separately if their host families are coming.

The dress code is either national dress or business dress.

The event usually lasts for about three hours.

It's usually a really happy event. Welcome!
to Class, S14

Hi,

Autumn is a time for windy weather in Sweden!

The storms that hit the UK are on their way to us later today. The worst affected areas will be north of us but there may be high winds hitting us later this afternoon/this evening/tonight.

Best advice? Stay indoors!

Take care, all
Hello everyone,

Just a message to note that there is a new issue of Malmö Update uploaded onto the Student Services site.

I'd like to take this opportunity to ask one thing of you...

This weekend is "All Saints" weekend and traditionally Swedes visit their family graves at this time of year. As you have a very large cemetery close to the Residence I would be grateful if you could keep this in mind. Very loud, "party" noises might carry over to the cemetery where people are paying their respects, which is not really appropriate.

Thanks in advance!

Have a nice weekend
Dear choir members

Looking forward to our first meeting tonight!

Please find attached a sound file with the instrumental version of the song, and a pdf of the music and text.

Could some kind person please bring a computer or some kind of sound system so we can listen?

Grateful.

See you at 6pm sharp! Basement.
Dear Graduation Choir 2013

It was a great performance yesterday, I was so proud of you all. Thank you for all the practices and effort you made to learn the song and actions so well. It was terrific. 20/10!

Sorry I disappeared at the end - I had to rush off to help........... handing out degree certificates.

Again, heartfelt thanks!!
to S14,

Dear students

As you can sense, the winds have abated a little from the peak that went through overnight, but there is still a class-2 storm warning for Malmö today. City buses are running more or less as usual but getting around on foot is difficult.

Luckily MSc students have no lectures.

There are some PhD students who have Research Methodology classes today with Professor Manuel: he advises he will spend time with those who turn up but understands those who don't!

My advice is to stay indoors as much as possible: flying debris can injure.

Take care.
Dear students

Another wind storm is approaching Skåne today. Winds are expected to increase all day and culminate during the night, with a drop in temperature as well. This might result in a couple of centimeters of wet snow (sorry, not the nice fluffy kind). Please note too that intercity trains and buses may be delayed or cancelled and in cases of high winds, the Öresund Bridge can close.

All in all, this will be a good day for study and I would advise staying in this evening!

And now for the tip! I saw in the paper this morning that the shop called Intersport has a special price for long underwear (see picture below). As long as stocks last, 99 crowns for both the upper and lower part (ordinary price 349). This is a really good idea if you are feeling the cold - wear them over your usual underclothes and they provide an extra layer of insulation. Intersport is found in several places in Malmö: near Nordea bank, and at the Mobilia and Emporia shopping centres.

This is the ladies' version but there is one for men too and different colors.
ICE HOCKEY, WEDNESDAY 22 JANUARY, 19:00

MALMÖ ARENA

MALMÖ REDHAWKS vs MORA IK

Tickets

I will meet you at the main entrance at 18:45 to give you your tickets

Please don’t keep this old lady standing in the cold - be on time!!
Getting to Malmö Arena:

1: By bus. Take bus number 6 from Disponentgatan (outside the Thai restaurant). The one to take leaves at 18:23 and arrives at the end-stop HYLLIE at 18:45. It only takes a few minutes to walk to the Arena from there: you will see it easily.

OR

2. By train. You can take the underground train one stop, from Triangeln to HYLLIE (in the direction of Köpenhamn etc). There is a train at 18:36 that will get you there on time. Then a few minutes’ walk to the arena, right next to the Emporia shopping mall. Your monthly bus card works on the train within Malmö: you just show it to the ticket inspector.

Dress warmly!

Remember that the arena may be cold.

You can buy food, drink and souvenirs
There will be hot and cold drinks and food on sale. You are not allowed to bring your own. You are not allowed to drink alcohol while watching the match, only in the pubs at the arena. There will be a lot of Redhawks souvenirs for sale.

Before the match...

Maybe they will play the Swedish national song. If so, it is polite to stand quietly.

During the match

There are three 20-minute periods with breaks in between.

Sometimes in the breaks, the children’s teams play a match. Fun to watch the little guys.

Essential Swedish phrases:

“Heja Redhawks!” (pron. Heya Redhawks) = Go Redhawks!

“Kom igen!” (pron. Kom iyen) Come on! Get back into it!

After the match

There are plenty of buses and trains back to Disponentgatan/Triangeln.

Gentlemen! Please accompany the ladies so they are safe.

None of us are ice-hockey experts...

…but we will be surrounded by them.

Watch and see how other people behave, so we can match our behaviour to theirs.

See you there!
WMU goes to the Symphony!

Thursday 27 March 2014, 19:00

Many students have not been to a symphony concert before. There are some special ways of behaving. Grateful if you take a look through these pointers!

Please be on time

The concert starts at 19:00 but you should be there latest 18:45. They do not admit late-arrivers!

Getting there and finding your seat

I think everyone knows where the concert hall is, where we had graduation last year. We go in the main glass doors at the front entrance into the foyer. Then consult your ticket. "Dörr" means "door" and we go into the auditorium either through door A. "Rad" is "row". "Plats" will give you your seat number.

Dress code

Whatever your personal style, you should be well-dressed. If in doubt, business dress is always safe.

Tickets!

Don’t forget yours. No ticket = no admission

Coats and jackets, hats etc

You are not allowed to wear or carry these into the auditorium, so you must either leave them in the wardrobe section (costs 20 crowns, I think) or don’t wear them at all.

You must be seated before the concert begins, and stay in your seat!

…in fact, you must be seated before the conductor comes onto the stage, or they will not let you in. Once seated, you should not leave your seat until interval/the end of the concert. I have witnessed the whole orchestra stopping because a lady in high-heels left while they were playing…. embarrassing!

No talking is allowed at any time during the music

Applause

Tricky! Best advice? Wait until the whole audience is clapping before you start. Many pieces of orchestral music are divided into parts, called movements, separated by short silent pauses. You should clap ONLY after the whole piece of music is finished.
Text: 14

Dear students,

Excursion tomorrow!

I am very glad indeed that you are interested in this and will be joining me on the bus tomorrow. We are about 15 people: I have of course more places on the bus if you have WMU friends who wish to join us.

Times

We leave Henrik Smith by hired bus at 09:00. The bus will be waiting outside the residence. Please do not be late!!

We will get back to Henrik Smith again at about 17:00.

Weather, and what to wear

The forecast for tomorrow is for good weather and about 20 - 23 degrees - perfect! However, we will be outdoors and on the coast quite a lot: it can be chilly in the wind. Be prepared.

Comfortable clothes and walking shoes are necessary.

Food: you need to take some food with you!

We will eat our picnic lunch in a national park north of Helsingborg, called Kullaberg. It’s a really beautiful place – but because the nature there is protected you cannot take grills etc. I always take my own prepared food (sandwich etc). There is a small kiosk there but I cannot guarantee it will be open.

In the afternoon you will have some free time in Helsingborg: lots of cafes and restaurants if you are hungry.

Payment
A few students need to pay me their 50 crowns tomorrow. Please have the correct money. I will not be able to change large notes. Thanks!

See you on the bus tomorrow!

**Text:15**

---

to S14,

**Dear students**

*Sweden is beautiful in summer.... let me show you the countryside*

You have already received a google invitation to the trip I am organizing for Friday 20th June (not tomorrow, Friday next week!). Currently I have 50 students on my list but as you know I am hoping to beat my record from last year of 120!

It's a great day: we visit a beautiful village by the east coast and then celebrate midsummer with several thousand Swedish people. I will teach you how to dance like a frog!

*How can you resist?*

Please see me to sign up. It costs 50 crowns but I am willing to extend credit until after pay-day. I need your signatures on my list by 5pm Tuesday.

Cheers
Appendix: 4 Glossary:

Instruction:

Instruction is the intentional arrangement of experiences lead learners acquiring specific capabilities. It is intentional facilitation of learning towards identified learning goals. Driscoll, 1994).

Experiential learning:

Experiential learning is the process of developing awareness, and changing habits that may take place in a laboratory or concentrated work-shop condition. A participant actively involves in communication and explores the behavioral changes and differences apart from learning art of communication and interpersonal skills. Learners participate in the practical situation or discussion they learn how to learn from their own experience. They infer meanings during interaction with others, they draw their conclusion while discussion, they probe preferences of each other in a simple talking hence they explore their personal identity and set social status. The experiential learning process creates individuality. It can take place through bodily experience, through words and imagery. It teaches how learners may go about their life in educational settings. They learn how they may interact among peers or with teachers (Eric, & Hall.1988, p. ).

Assessment:

Assessment is the key factor of learning because it helps improving teaching and learning strategies. Assessment identifies the actual learning outcomes, rectifies the benchmarks, improves the learning process and shows the strength and weakness of learner and learning system. It is beyond from scoring, grading and marking. Assessment is essential for evaluation (Wrigley, 1992).

The mode of Assessment:

Evaluation is carried out to know the prior knowledge and skill of students in order to set objectives of the upcoming class. Teacher determines his teaching methodology considering learners’ needs, learning strategies and intelligence (Fisher, & Muirhead, 2013)

Formative assessment:
It takes place throughout the learning process. Learners come to know their strength and shortcoming. Considering their potential and academic needs teacher develops the lesson plan hence it is a constructive process for learner and teacher. Profiling and objective test can be used for formative assessment (Bray, 1992). It improves the motivation of learners (Fisher, D., & Muirhead, P. 2013)

**Summative assessment:**

it is carried out at the end of the course. It determines the grades that are important for learners in their professional life (Bray, 1992). Hence, Intrinsic and extrinsic motivation act as a catalyst in their learning process (Slavin, 2009).

**Multiculturalism:**

Multicultural education enables individual to deal with the complexity and the diversity of socio-economic and political realities. It promotes analytical and evaluative ability to deal with diversity and develops a willingness to accept others socio-cultural values. It strengthens linguistic skill. (Katz, 1982)

**Human Error:**

Errors may occur in action, speech, perception, recall, recognition, judgment, problem-solving, and decision-making or conception formation. The term error can be applied to intentional actions it refers failure of deliberate actions such as slip or lapses. It is a failure of deliberate action to achieve set goals as mistake. An inappropriate intention is mistake and unintentional action is considered a slip. Mistake refers mismatch between the prior intention and the intended consequences. All those occasions there planned sequence of mental and physical activities fail to obtain desired consequences are considered error. There are two basic forms of error first planning failure that is mistake secondly execution failure these are slips and lapses. Errors are classified at three levels: behavioral, contextual and conceptual. (Human error writes the reference)

**Web:**

The web is a part of the internet. it is considered a set of standards and software; makes internet accessible, compatible and easy for every type of computer and operating system. It used as an independent platform for software developers and software users, but it is distinct from traditional computer hardware and operating system (Alessi & Trollip, 2001, p. 374)
**E-learning**

It refers the application of electronic devices/media for education. In E-learning information and communication technologies (ICT) are used for teaching and training. The combination of internet and electronic devices are used to provide distance learning, computer based learning (CBT) virtual learning, digital learning, web-based learning (WBL); blended learning these are the different ways where technology is used for teaching, learning and training (Vajargah, Jahani, Azadmenesh, 2010).

**ICTs**

These are a diverse set of technological tools and resources used for creating, storing, managing and communicating information to support teaching, learning and research activities (Vajargah, et al, 2010).

**Synchronous communication:**

The parties communicate both ways at the same time just like having a live conversation on the telephone. Synchronous method includes chat rooms, audio teleconferencing and video teleconferencing (Alessi & Trollip, 2001, p. 375).

**Asynchronous communication:**

There is a time lag among the parties as one leaves a message on a telephone answering machine that will be listened to at a later time. It includes e-mail, listserves, newsgroups and bulletin board (Alessi & Trollip, 2001, p. 375).

**List serves:**

It is an example of asynchronous communication it is a single e-mail address that contains a list of other e-mail addresses. Supposing an instructor enters the names and email addresses of students so all the students can send an e-mail message to the entire group (Alessi & Trollip, 2001, p. 375).
On-Site Learning:

It is traditional type of learning in which people come in the classroom and learning takes place using web and its related technologies. (Alessi & Trollip, 2001, p. 379)

Cognitive: mental process of understanding
Dear Respondent,

I am currently undertaking the Master of Science (MSc) program in Maritime affairs at the World Maritime University specializing in Maritime Education and Training. The World Maritime University (WMU) is an educational institution of the International Maritime Organization (IMO).

I am an Education Officer in Pakistan Marine Academy, Pakistan. The MSc program will support my professional development and enhance the quality standards in teaching and training of seafarers in my country. Currently, I am working on a dissertation; titled “The influence of educational technology on affective education in Maritime Education and Training” in order to analyze the place of values in the training of seafarers; their motivation in the learning process and their attitude to acquire professional skill through technology. In this regard, I would like to solicit your views and opinion. Your input will be very helpful in my findings.

I will be grateful if you spare some time to complete the questionnaire attached herewith where it is relevant to your field. The information will be used in my dissertation only. It will not affect on your academic assessment. Your anonymous participation - through purely voluntary – is critical to the success of the survey and is very much appreciated.

Please contact me if you need any further clarification. You are a very important part of this survey and I thank you in advance for your time, the patience to answer my questions and the sharing of your knowledge and expertise.

Yours sincerely,

Rani Unnab Aziz Khan

WMU, Sweden

E-mail: s14099@wmu.se

By proceeding with answering this questionnaire you indicate your informed consent and understanding that your participation is completely anonymous and that all personal data relating to respondents (if any) will be held and processed in the strictest confidence.
1- What is your current occupation? Select only one option, please.
   - Teacher
   - Seafarer
   - Student
   - Other: [blank]

2- What is your nationality?

3- What is your gender? *
   - Male
   - Female

5- What is your academic qualification?

6- What was the reason for choosing a maritime career?
## Section B

Instructions: Please indicate your agreement with the following statements, there "Lowest" indicates the least agreement and "Highest" shows complete agreement. The questionnaire is about the impact of educational technology on affective education.

1- Technology helps students understand the course content.

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2- Integrating technology into class activities increases the motivation of students.

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3- Technology provides an opportunity to involve learners actively in the learning process.

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4- Technology gives all students equitable access to knowledge and skill.

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5- Technology provides high quality on-going feedback to teachers and students.

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6- Technology enhances content competence and professional skill.

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7- Technology is used to replicate things only.

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8- Technology is an effective tool to maintain students self-esteem.

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9- Technology reduces the creativity of students.

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<td>12- Technology-based education enhances quality standards in maritime education.</td>
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<td>13- Technology provides freedom of choice in decision-making activities.</td>
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<td>14- Technology-based learning increases technology dependence.</td>
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<td>15- Technology leads to feeling of isolation.</td>
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<td>16- Technology-based learning brings positive change in behaviour of learners.</td>
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<td>17- Technology educates learners to adopt constructive attitude to deal with illicit drug and HIV.</td>
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<td>18- Technology-based education develops personal integrity.</td>
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19- Knowledge of values and information of subject are equally important in maritime education.

Lowest ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Highest ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

20- Technology helps learner in identify his/her own learning style, exploring his/her innate ability in order to serve the world for the welfare of all.

Lowest ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Highest ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Section C
Remarks
Is there anything else you would like to comment on the influence of technology on affective education?
Kindly write your comments below, please.
Learning Taxonomy – Krathwohl's Affective Domain

<table>
<thead>
<tr>
<th>Level and Definition</th>
<th>Illustrative Verbs</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receiving</td>
<td>refers to the student’s willingness to attend to particular phenomena of stimuli (classroom activities, textbook, music, etc.). Learning outcomes in this area range from the simple awareness that a thing exists to selective attention on the part of the learner. Receiving represents the lowest level of learning outcomes in the affective domain.</td>
<td>asks, chooses, describes, follows, gives, holds, identifies, locates, names, points to, selects, sites, selects, replies, uses</td>
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<tr>
<td>Responding</td>
<td>refers to active participation on the part of the student. At this level he or she not only attends to a particular phenomenon. That also reacts to a particular phenomenon. Learning outcomes in this area may emphasize acquisition in responding (reads assigned material), willingness to respond (voluntarily reads beyond assignment), or satisfaction in responding (reads for pleasure or enjoyment). The higher levels of this category include those instructional objectives that are commonly classified under “interest”; that is, those that stress the seeking out and enjoyment of particular activities.</td>
<td>answers, assists, completes, conforms, discusses, greets, helps, identifies, performs, practices, presents, reads, rectifies, reports, selects, tells, writes</td>
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<tr>
<td>Valuing</td>
<td>is concerned with the worth or value a student attaches to a particular object, phenomenon, or behavior. This ranges in degree from the sincerest acceptance of a value (desires to improve group skills) to the more complex level of commitment (assumes responsibility for the effective functioning of the group). Valuing is based on the internalization of a set of specified values, but due to these values are expressed in the student’s overt behavior. Learning outcomes in this area are concerned with behavior that is consistent and stable enough to make the value clearly identifiable. Instructional objectives for this category have been classified under “attitudes” and “appreciation” would fall into this category.</td>
<td>completes, describes, differentiates, explains, follows, forms, initiates, invites, joins, justifies, proposes, reads, reports, selects, shares, studies, works</td>
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<td>Organization</td>
<td>is concerned with bringing together different values, resolving conflicts between them, and beginning the building of an internally consistent value system. Thus the emphasis is on comparing, relating, and synthesizing. Learning outcomes may be concerned with the conceptualization of a value (recognizes the responsibility of each individual for improving human relations) or with the organization of a value system (develops a vocational plan that satisfies his or her need for both economic security and social service). Instructional objectives relating to the development of a philosophy of life would fall into this category.</td>
<td>arranges, alters, arranges, combines, compares, completes, defends, explains, generalizes, identifies, integrates, modifies, orders, organizes, prepares, relates, synthesizes</td>
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<td>Characterization by a value or value set</td>
<td>The individual has a value system that has controlled his or her behavior for a sufficiently long time for him or her to develop a characteristic “value style.” Learning outcomes at this level cover a broad range of activities, but the major emphasis is on the fact that the behavior is typical or characteristic of the student. Instructional objectives that are concerned with this level of characteristic include those that are concerned with the student’s actual skill level</td>
<td>acts, discriminates, displays, influences, listens, modifies, performs, practices, proposes, qualifies, predicts, reviews, solves, solves, uses, verifies</td>
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<tr>
<td><strong>Organization</strong></td>
<td><strong>Characterization by a value or value set</strong></td>
<td><strong>Characterization by a value or value set</strong></td>
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<td>Learning outcomes may be concerned with the conceptualization of a value (recognizes the responsibility of each individual for improving human relations) or with the organization of a value system (develops a vocational plan that satisfies his or her need for both economic security and social service). Instructional objectives relating to the development of a philosophy of life would fall into this category.</td>
<td>The individual has a value system that has controlled his or her behavior for a sufficiently long time for him or her to develop a characteristic “life-style.” Thus the behavior is pervasive, consistent, and predictable. Learning outcomes at this level cover a broad range of activities, but the major emphasis is on the fact that the behavior is typical or characteristic of the student. Instructional objectives that are concerned with the student's general patterns of adjustment (personal, social, emotional) would be appropriate here.</td>
<td>A person's lifestyle influences reactions to many different kinds of situations. Shows self-reliance when working independently. Uses an objective approach in problem solving. Displays a professional commitment to ethical practice on a daily basis. Reevaluates judgments and changes behavior in light of new evidence.</td>
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<td>spheres, alters, arranges, combines, compares, completes, defends, explains, generalizes, identifies, integrates, modifies, orders, organizes, prepares, relates, synthesizes</td>
<td>acts, discriminates, displays, influences, listens, modifies, performs, practices, proposes, qualifies, questions, revises, solves, solves, uses, verifies</td>
<td>Recognizing own abilities, limitations, and values and developing realistic aspirations. Accepts responsibility for one’s behavior. Explains the role of systematic planning in solving problems. Accepts professional ethical standards. Prioritizes time effectively to meet the needs of the organization, family, and self.</td>
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