The Effect of Formative Assessment Source on Developing Mastery Motivation among Instructional Technology Students

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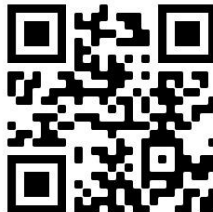
The Effect of Formative Assessment Source on Developing Mastery Motivation among Instructional Technology Students

Abstract:

The aim of the current research is to reveal the effect of the formative assessment source on developing mastery motivation among instructional technology students during their studies of instructional content "Instructional Animation Film Production Skills", the research tool represented in mastery motivation scale, while the experimental treatment subject in an e-learning environment represented two images, one of which is based on the source of the teacher formative assessment, while the other is based on the source of the peer formative assessment, the results showed the effectiveness of the teacher formative assessment source in raising the level of mastery motivation over the peer formative assessment source, among Research recommendations: Preparing instructional situations by employing corrective activities accompanying the appropriate feedback that help increase the motivation of mastery among students, The necessity to draw attention to the importance of mastery motivation and to consolidate the principle of learning for mastery, Take advantage of the proposed e-learning content topics to be primarily based upon other instructional programs for the development of other skills.

Keywords: the source for formative assessment, mastery motivation.

Introduction:

The technical development has led to wide changes in the field of education, so the interest of educators has increased in making changes in the instructional process to keep pace with the requirements of this development, the instructional process has sought to achieve a strategic goal is to have access the learner required level of learning and excellence, and accordingly provide him with all the possibilities that help him to reach the highest level of the desired learning (proficiency), in accordance with the instructional objectives and instructional content, activities,

assessment methods and modern techniques used, which makes it able to meet the atheist and the twentieth century requirements.

Students are born with an innate motivation to learn, but these motives are affected by environmental variables, which leads to their growth for some or lack thereof among others, the lack of such motivation often leads to a lack of efficiency compared to their peers; students who are highly motivated to master are more efficient in their achievement and performance compared to their less motivated peers to master (Asmaa Mabrouk, 2014, 445).

Kahraman Hussain (2015, 56) defended the mastery that sense of performance-related and this feeling produces two-fold: Hope of success and fear of failure during the student's quest to exert maximum effort and struggle for success and reach the best level, Saleh Al-Aboudi, Tariq Badr, and Ali Abdul Rahim (2015, 190, 191) defined the components of mastery motivation as follows: "Desire for excellence, self-performance unique for others, the desire to know and see, seriousness and perseverance in performance".

Among the studies that dealt with mastery motivation is the study of Asmaa Mabrouk (2014), which concluded that mastery motivation varies in different stages of growth and the importance of its development, especially in the early age stages due to its primary role in shaping the behavior of the individual, which makes mastery motivation a good predictor of academic success, Ali Mustafa (2004) study proved that there is a positive and statistically significant correlation between the degree of academic achievement and the motivation of mastery, especially among females.

The development of the student assessment process is one of the important and realistic approaches when seeking to develop any instructional system, so what necessitated the development of all aspects of the entire instructional system including the updating of the respective roles of the teacher and the learner during the assessment process, as an extension of this perspective, some aspects of learning management systems have been developed that are concerned with assessment activities in order to solve the problems they face, such as the increase in the number

of students and the inability of the faculty member to follow up the performance of the instructional tasks of the students, also, in response to the invitation for students to participate in their learning process (Hani Al-Sheikh, 2014, 212).

Formative assessments one of the most important types of assessment in the instructional process, as it contributes to the performance of many functions, the most important of which is directing students in the desired direction, identifying strengths and weaknesses of students to treat and avoiding weaknesses, and strengthening strengths by introducing the learner to the results of his learning and giving him a clear idea of his performance and stimulating the learner's motivation to learn and continue in it (Ismail Hassan, 2004, 367).

There are several classifications of the formative assessment, and the current research will deal with the classification according to the source and destination of the assessment (teacher assessment and peer assessment), and many research and studies have indicated that there is a positive effect between student learning and teacher formative assessment such as Olina, Z., & Sullivan, H (2002) Where students who obtained teacher assessment achieved greater knowledge than students who did not receive teacher assessment, Ozogul, G., Olina, Z., & Sullivan, H. (2008) found that students who received formative feedback from the teacher For projects, lesson plans they wrote much better than students who got peer feedback.

Although the teacher formative assessment has achieved many of the desired results, many researchers have indicated the amount of time spent in giving formative assessment to each student, and they found that the time and the amount of feedback given takes a lot of the teacher's effort, class time and time spent in designing this type of assessment. (Olina, Z., & Sullivan, H. 2002.

Falchikov, N., & Blythman, M. and Keppell, M., E. Au, et al (2006, 456) also confirm that peer assessment aims to stimulate the ability of learners to make judgments of their own. The work of their peers so that it is developed according to a set of standards that are determined in advance with the teacher, It encourages students to participate and enhance their excellence and can

considered a special type of cooperative learning, so students exchange together the tasks that they performed so that each does the work of the other, it deepens students' understanding of learning topics and develops cooperative learning skills.

The researchers explored the research problem from several sources, including:

- Studies related to the effectiveness of the source of formative assessment in different learning environments. Several studies have demonstrated the effectiveness of using these patterns to achieve different learning requirements, such as the study of Ayman Madkour (2014). Inas Mohamed (2016); Vonderwell, S. K. & Boboc, M. (2013); Hassan Hassanein and Muhammad Al-Shehri. (2016); Campas, G. P.; et al (2016); Senye-Mir, A. M et al, (2016).

- To find out the reliability of the research, the researchers conducted an exploratory study on a volunteer sample of (60) male and female students from the third division of the Department of Instructional Technology, It included an opinion poll on the dimensions of mastery motivation aimed at identifying the needs of students of instructional technology at the Faculty of Specific Education, Minia University, necessary to develop mastery motivation during their study of instructional content. Skills of producing instructional animation films, The results confirm the necessity of developing mastery motivation among students of instructional technology through building an e-learning environment and providing instructional content "skills for producing instructional animation films" through it and the different source of formative assessment between the teacher and peers in that environment.

Research problem:

The research problem crystallized in uncovering "Failure in mastery motivation of instructional technology students, therefore, the current research attempted to address this problem by answering the following main question;

" What is the effect of the formative assessment source on developing mastery motivation among instructional technology students? "

Research hypotheses:

There is a statistically significant difference at the level (0.01) between the mean scores of the first experimental group students (source of teacher assessment), and the second experimental group (source of peer assessment) in the Mastery Motivation Scale.

Research aims:

The aim of the current research is to reveal the effect of the formative assessment source on developing mastery motivation among instructional technology students (the research sample).

Research importance: The Current research has contributed to:

- **Theoretical importance:** revealing the appropriate pattern for the formative assessment source in the E-learning environment.
- **Applied importance:** increasing the level of mastery motivation among students of instructional technology.

Research limits:

The current research was limited to:

- **Human limits:** applying the research to a random sample of third year students at the Department of Instructional Technology, Faculty of Specific Education, Minia University, due to the availability of tribal requirements in the research sample.
- **Temporal limits:** applying the research in the first semester of the academic year 2020/2021.
- **Content limits:** The current research topics have relied on the proposed instructional content skills of instructional animation film production.

Research Methodology:

The current research used the quasi-experimental approach in order to identify the effect of the formative assessment source on mastery motivation in order to verify the validity of the research hypotheses.

Measurement tool:

Mastery motivation scale.

Experimental treatment material:

The experimental treatment material in an e-learning environment was represented by two images, one of which is based on the formative assessment source (teacher) and the other on the formative assessment source (peer); Google Classroom was used to make it easy to manage student records, track their activities and calendar, synchronous and asynchronous interaction and communication with students, providing instant feedback to students, ease of viewing and managing electronic content.

Experimental Design Research:

According to the research, objectives were to choose experimental design with two experimental groups.

Research variables:

The current research included the following variables:
- The independent variable: the source of the formative assessment and has two modes (teacher and peer) in an e-learning environment.
- The dependent variable: (mastery motivation).

Search terms:

Formative Assessment:

an organized and planned methodology Assessment process that takes place during learning and helps both the teacher and the learner to know the level of mastery of learning tasks and conclude evidences to determine the level of learner progress to improve the learning process

The formative assessment source "the teacher"

A group of procedures that the teacher performs it during the learning process in order to modify learning activities or treatment the individually or group defect and provide the appropriate feedback to improve the learner's performance.

The formative assessment source "the peers"

A group of procedures that the learner perform to evaluate works of his peers - assignments, learning tasks and homework - based on criteria predetermined by the teacher.

The mastery motivation:

A group of dimensions that can increase the motivation of students' mastery to the cognitive achievement and the skillful performance of the educational animation films production skills and is measured by the degree that the student obtain in the scale prepared for that, and the dimensions represent in the following (the desire to distinguish from others / preference the middle area, the self-depends / the depends on lectures and practical lessons, the desire to continued knowledge / the desire to obtain the success degree, persistence in performance / the easy work love.

The theoretical framework of the research:

The first axis - the source of the formative assessment:

The first person to use the term formative assessment was Michael Scriven in 1967, and Bloom and his colleagues developed it in 1971 and has used it in the field of curriculum improvement; as he believes that when the curriculum is developed, the participants in its development are reluctant to make any change to it, and there is no way to convince them of the need for change except by gathering appropriate evidence through assessment during the course of building and testing the curriculum (Salah Ahmad, 2005, 327).

The formative assessments is series of instructional calendar experiments designed to monitor the progress of the learner during the learning and recorded his estimates or where temporary signs (if the estimates are required), they indicate the development of his instructional career and these signs do not affect him, but in the end he chooses the best ones to be an aspect of his overall performance assessment (Ahmed Al-Sidawi, 2004, 61).

Parkinson, J. (2004) showed that a good application of formative assessment leads to improved test results, improved students' underachievement, and helped students learn, It also encourages learning in depth instead of superficial learning, and leads to focus on the important things in learning and raise the self-esteem of learners and improve the direction towards learning.

In this range of both fact. (Compas, J. & Ohen, J 2007)) The effect of formative assessment on increasing students 'achievement and enabling them to understand mathematics topics

in their study, the results of the study revealed MEU about the lack of clarity of what students should learn from sports topics, and they do not bear the responsibility of their learning is added to the belief that when existing in the system of education that the test function classification only students and not to increase their motivation to learn, the researchers have worked on a variety of instructional activities, such as the use of concept maps, and summarize the topics and focus on providing feedback and continuous formative assessment, can described by the calendar that practiced by researchers as a certified performance assessment, the results of the study showed an increase in students 'interaction in instructional situations. the results also showed an increase in student achievement due to the method used in teaching.

Through the above, the researchers see that the formative assessment is an important element of building instructional content, as it helps both the teacher and the learner during the learning process, it helps the teacher to know the extent of the success of the established teaching strategy and the appropriateness of content, activities and tests provided to the level and characteristics and abilities of the students by providing immediate and continuous feedback for students, it helps students in the continuity of learning successfully and rely on themselves and assume the responsibility of their learning and increase self-confidence and develop many of the skills, such as thinking and problem solving skills.

What is a formative assessment?

The literature reflects the divergence of opinions and views on a specific concept of formative assessment as studies by: Keeley, P. (2008); Jafar Al-Tahan (2011, 21); Hamblen county department of instruction professional development (2012); Afitska, O. (2014, 30); Hassan Hassanein and Muhammad Al-Shehri (2016, 42); (443 ،2018)Louhab, F. E., et al. The researcher drew the following points about the concept of formative assessment:

- Assessment for learning to help students achieve the desired goals.

- Provide a set of activities to measure the actual performance levels of the student.
- Formal and informal processes that are used by both the teacher and the learner to collect evidence with the goal of improving the learning process.
- It based on comparing the actual performance levels of the student with the desired performance levels in order to provide feedback to both the teacher and the student.
- It contributes to increasing learners' experiences and knowledge through their participation in their learning process, which leads to their self-assessment of their learning.
- It carried out at the end of each instructional task and the aim is to inform the teacher and the learner of the degree of mastery he has reached and when he needs to know where and how to overcome difficulties during learning.
- An assessment designed for the student to guide, reinforce, and improve the learning process.
- An integral part of the learning process that informs and informs the teacher of how students make their learning decisions.
- Formative assessment can beneficial to both the teacher and the learner as it allows teachers to make decisions about their students' progress and performance, and it can allow students to evaluate themselves and monitor their progress and performance.

The importance of formative assessment:

The importance of formative assessment is clearly demonstrated in the curriculum building process; whereas, it provides those in charge of the curriculum with the necessary information and data on the results of the experiment and everything related to the progress of its implementation and the extent of its effectiveness and suitability for the learners and thus enables them to make the necessary adjustments to this curriculum (Yusuf Muhammad and Abdul Hafiz Al-Shayeb, 2003, 10).

There have been numerous studies and research that dealt with the importance of employing formative assessment in the e-learning environment, such as: Bahjat Al-Takhina and Moufid Abu Musa (2009, 119); Youssef Al-Kandari et al (2016, 157); Inas Mohamed (2016, 30); Nader Hammadaneh (2017, 19), which the researcher concludes as follows:

- Identify students' strengths and weaknesses to treat weaknesses and reinforce strengths.
- Analyzing learning topics and clarifying the relationships between them.
- Familiarizing the learner with the results of his learning and giving a clear idea about them.
- Directing students' learning in the desired direction.
- Exceeded the limits of knowledge to understanding to facilitate the transition of the impact of learning.
- Motivating the teacher to plan well for teaching and setting instructional goals in behavioral formulas or in the form of instructional outcomes to achieve.
- Encouraging students to take responsibility for their own learning.
- Provide repeated assessment that ensures the student's assessment by himself or with his peers.
- Provide timely feedback to predefined goals that contribute to improved learning, deeper understanding and better learning outcomes.
- Reviewing the learner in the subjects studied in order to consolidate the information learned from them.
- Establishing a remedial education program.
- Assisting the teacher in improving his teaching style or finding alternative teaching methods.
- Fixation of learning and increasing retention of learning by linking post-learning with prior learning.
- Reducing the negatives of end-of-semester exams.
- Documenting the student's performance and achievements through the achievement file.

The role of feedback in formative assessment:

Muhammad Al-Sfasfa (2000, 91) defines feedback as informing the learner of the outcome of his learning by providing him with information on the progress of his performance on an ongoing basis, to help him stabilize that performance if it is moving in the right direction, or to modify it if it needs to be modified.

Blazyk, S., (2010, 121) defines peer feedback as an activity that provides an opportunity to negotiate and comment on

learners' ideas among themselves, and encourages learners to actively participate in correcting errors directly without an intermediary while providing suggestions to develop their performance.

In this regard, the Richardson, J. et al (2007) study investigated the impact of using web-based peer feedback to improve learners 'critical thinking skills, and concluded that providing peer feedback had an impact on learners' higher levels of cognitive both, Comments or observations or who received them. The study provided by Ralph, L. R. (2009) at the ICC International Conference in Florence, Italy; as it dealt with a comparison between two electronic feedback management systems: the first is the peer feedback system, and the second is the feedback via e-mail. The results revealed a remarkable progress in the grades of students using the peer feedback system, especially students who received more comments from other students.

The study of Gielen, S, et al (2010) also revealed the effect of providing feedback between peers in exchange for feedback through the teacher as well as the forms of its presentation and its relationship to support the learning process; then the results came to prove that there are no statistically significant differences between the two groups and that the feedback provided by the peer brings good results that are no less important than the feedback provided by the teacher.

Thus, the formative assessment process provides feedback to both the learner and the teacher, so the learner receives feedback to adjust and improve his performance, and the teacher receives feedback to determine the learners' performance, which may require modification and change in the activities of the unit and teaching method to address weaknesses.

Source for formative assessment:

There are many sources for formative assessment of students' work through e-learning environments, including teacher assessment, peer assessment, self-assessment, external institutions assessment, multi-lateral assessment, and other various assessment sources, but the researcher identified two sources for formative

assessment in the current research, namely teacher assessment and peer assessment, and it did not address self-assessment, because self-assessment is implicitly done within each stage of learning. To the teacher if he found it correct from his point of view, The researcher turned to peer assessment as a new source of formative assessment in order to compare it with teacher assessment as they are the most popular category in assessment in general and formative assessment in particular. Many studies have gone, such as the study of Sullivan, D. & Watson, Sh (2015); Yurdabakan, I. (2016); Thawabien, A. M. (2017); Omar, S. N. P.; Shah Rill, M. & Sajali, M. A., (2018) explored new methods of formative assessment, such as peer assessment in order to relieve the teacher's burden and help the learner to indulge in his learning process more, take responsibility for his learning, increase his self-confidence, and develop his various skills.

What is a peer assessment?

The concept of peer assessment is based on a new perspective in the calendar that allows learners to collaborate together in evaluating each other's actions, which makes them a positive and active role in their learning and assessment of their work and works to encourage them to think and increases students' self-confidence and urges them to assume responsibility and helps them to know the characteristics of good work that they present it (Salah Allam, 2007, 225).

Peer assessment is a tool specialized in evaluating students' performance quantitatively and qualitatively. It stimulates students to discuss and cooperate and requires them to take notes, scores, or both, on the performance of their peers, relying on the standards of excellence in performance (AL Zaid, J. m., 2017, 160).

Studies interested in peer assessment have shown that students in general have expressed their admiration for practicing peer assessment activities because these practices provide them with an appropriate opportunity to criticize the work of their peers, and studies have also indicated that there is a lack of self-confidence among students when evaluating their peers and the need for predetermined standards or rules for practicing peer assessment. (Khonbi, ZA & Sadeghi, K., 2013, 90).

Factors that help students in evaluating their peers:

Qasim Al-Sarraf (2002, 358) stated that there are four factors to help students evaluate their peers namely:

1- Awareness of the limitation of the observer: the evaluator has an effect on the subject, and the evaluator can see a small part of a group of operations that the subject performs in his interaction with the instructional environment.

2- Observation and interpretation: students' knowledge of the list of criteria for the part to be evaluated. Whereas, the evaluator needs to describe the performance and work accurately and clearly and cannot explain the performance randomly, and therefore he must have the evidence and evidence for that.

3- Honest and transparent expression: The task of the constituent is to discuss the experience that has observed. Experience can observed in two ways:

- The method of personal response: where the corrective person expresses his personal feelings and his understanding of what he observed.

- Standardized estimation method: where the evaluator compares what he observes with a set of external standards.

4- Listening and implementing: Some students think that assessment is good or bad without realizing that all judgments based on specific visions and that all visions help illuminate the truth.

The instructional value of peer assessment:

Conducted by AL Zaid, J. m. (162 ،2017)   A study to examine the effect of peer assessment during the learning assessment process, and the results of the study came in the presence of a statistically significant positive effect between each of the peer assessment of each other and between the assessment of the teacher and students, he also mentioned several benefits of applying peer assessment as follows:

- The peer assessment process provides favorable results through assessment criteria in a short period of time.

- It provides information on student achievement that often matches the teacher's assessment information, leading to higher student achievement.

- Enhancing their capabilities when training them on how to evaluate their business.
- Develop their critical thinking skills.
- Development of social skills such as cooperative learning skills.

Through the above, the researcher concludes that participation in the peer assessment process provide the students a set of characteristics as follows:
- The development of the learning process.
- The development of student responsibility for their actions.
- Provide students with basic skills and assessment criteria.
- Involve students in judging their own and that of their peers.
- Reduce dependence on the teacher and self-reliant in the assessment process.
- Develop their many skills such as skills beyond knowledge and skills of critical thinking and social skills.

The second axis - mastery motivation:

In general, many scholars agree that there must be an impulse for learning to take place. In the absence of an impulse, there will be no behavior, and thus learning does not occur, individuals are born with innate motivations to learn, but these motives are affected by environmental variables, which leads to their growth in some or their lack in others, and the lack of these motives often leads to a lack of their competence compared to their peers of the same age, so the level of mastery motivation among individuals can predict; students who have a high motivation for mastery are more efficient in their performance compared to their colleagues who are less motivated to master (Ahmed Fadl and Alaa Muhammad, 2015, 474).

Barron, K. (2000) also emphasized in his study that the mastery motivation is related to the mastery goal that focuses on the adaptive outcomes of mastery goals He believes that it is best to focus on both the mastery and performance goals together.

One of the key features identified by Morgan, G. A. (1992, 2) is the drive to mastery:
- Continuing the attempt, as the student's attempt to master the tasks actually assigned to and directed to it does not end until those tasks are successfully completed.

- Dealing with motivation mastery independent student attempts to master the difficult tasks to some extent with the help of peer or teacher.

- The persistent and focused behaviors on a specific goal are the best example of mastery motivation, and mastery here is a focused effort and time to accomplish a task, and therefore the key to mastery motivation is continuity in tasks.

- The motivation of mastery is not a motivation to learn, but only is the motivation to solve the problem or master a skill or task.

- One of the main factors that can seen through a student's attempt to accomplish a task is persistence.

- Tasks used in the detection of motivation mastery should be the appropriate level of difficulty to the level of student growth to be a success where possible.

According to Bloom, B. S. (1976, 125) that motivated mastery aims to deliver students to a high level of efficiency by using different from the traditional methods of education represented in the following steps:

- Clear identification of learning outcomes in each instructional unit with the aim of mastering cognitive skills in levels of knowledge, understanding and application, and skill in using operations.

- The use of cooperative learning method in how to teach each instructional unit or sub-themes for each unit.

- Conducting a continuous formative assessment in the teaching of the instructional unit to provide data indicating the extent of change in the performance of students in achieving the instructional goals, and then diagnosing the instructional difficulties of students who did not reach the level of mastery and strengthening the outstanding students.

- Provide therapeutic methods of learning organization through feedback corrective to help students overcome learning errors and to provide additional time for learning and making additional practical exercises to learn students who have not achieved the level of proficiency in the instructional unit.

The study found Keilty, B. (2003) conducted to identify the factors that affect the formation of motivation proficiency among children through measuring the interaction between parent and

children and parents' perceptions of the skills of their motivation proficiency which resulted in the presence of four factors that affect the formation of mastery motivation: the state of development, the skills of mastery motivation and self-regulation, and the relationship between the child and his peers.

Regarding the importance of mastery motivation, Bloom believes that what anyone in the world can learn can most other people learn if a suitable instructional environment is provided for them, his idea is based on the fact that students need different time averages to learn a certain concept, accordingly, teachers must review the strategies they employ in the teaching processes in a way that takes into account the individual differences between students so that students who grasp practical concepts and procedures quickly have the opportunity to enhance and challenge their capabilities by presenting enrichment activities that stimulate and develop for them better strategies for solving the problem and mastering the concepts while receiving continuous feedback from either their peers or their teachers (Carter, T. S., 2004, 32).

It can thus be said that the primary goal of motivation proficiency is to improve the level of performance of students in general during the learning process by relying on the principle of mastery occurs according to Criteria standard performance specific aims to continuous follow-up regularly to the level of student performance even overcomes any deficiencies or weaknesses that may be occur during the learning process, and formative assessment contributes to achieving this goal of mastery motivation.

What is the motivation for mastery?

The literature reflects contrasting perceptions and perspectives on what motivation to mastery is, and Gottfried, A (1994, 18) agreed; Shiner, R. L. (1998, 323); Ali Mustafa (2004); Lee, A. J., (2014, 12); Ahmed Fadl and Alaa Muhammad (2015, 475); Suad Nasr (2017, 230) on the following concepts of mastery motivation, which the researcher summarizes as follows:
- A psychological force that motivates an individual to attempt independently in a focused and continuous manner to solve a problem or master a skill or task.

- The desire for excellence, self-performance, and perseverance in performance.
- Students' perseverance, their enjoyment of learning, interest in everything new, and curiosity.
- Acting out of curiosity or interest and a lot of pleasure in mastering tasks and favoring difficult over easy ones.
- Active energy directed towards focus on the goal and lead the student to make independent attempts to interact with the situation and reach higher levels of mastery.
- A psychophysiological force that stimulates the individual to perform tasks that include basic dimensions of mastery motivation and include perseverance directed towards a topic, the desire to distinguish from others, mastery motivation social, expressive dimensions of mastery motivation, including happiness of mastery and negative reactions towards failure.

Also refers to Ali Mustafa (2004) that the concept of motivation mastery differs from the concept of achievement motivation, as it refers to motivation for mastery, not achievement and achieve tasks only, and then it is a deeper concept than the psychological and personal forces aimed at achievement and learning for mastery is an authentic instructional goal.

In this regard, Douglas, C. (2002) conducted a study on performance goals on the motivation of mastery among university students, and the results showed that students who adopt the goal of the method of performance are motivated by competition and the ability to demonstrate their abilities, while students who adopt the goal of avoiding performance appeared to show lack of self-motivation and perseverance.

Sandra, P. et al (2003) also investigated the relationship between expressive language and mastery motivation in a sample of elementary school students, and the results concluded that there is a positive statistically significant correlation between (directed persistence and the degree of social participation) and mastery motivation.
There were no statistically significant differences between males and females in social mastery motivation.

Muhammad Bakhit (2013) also conducted a study aimed at identifying the relationship between surface and deep learning

styles with academic achievement and mastery motivation, and the results concluded that there is a positive statistically significant relationship between deep learning and both academic achievement and mastery motivation. Mastery motivation.

Through the above, the researchers see that the elements for achieving mastery in learning are the provision of a good learning environment in which all the learning requirements are met, starting with the precise definition of objectives, the availability of content and its organization in a manner commensurate with the characteristics of the learners and takes into account the individual differences between them, and the compatibility between the various types of assessment and the pre-determined goals, as well as the availability of immediate and continuous feedback, and appropriate reinforcement for each learning situation that the student goes through.

Research procedures:

- Getting acquainted with many studies and literature related to the sources of formative assessment and mastery drive, and analyzing this literature and making use of it in preparing the theoretical framework for research, preparing experimental treatment material, and preparing research and measurement tools.

- Determine the list of main themes and its sub-elements of the motivation necessary proficiency in the development of instructional technology students through a questionnaire prepared by researchers, and then presented to the arbitrators and their approval.

- Design the experimental treatment material, production and presented it to the number of arbitrators for approval and make adjustments, consisted in providing instructional content (instructional animation production skills) through the creation of two academic classes within the Google Classroom platform, where one of them depends on the source of the formative assessment (the teacher) and the other depends on the source of formative assessment (the peer), therefore, a single e-learning environment has been built with unified instructional content, evaluation activities and standardized formative tests, the interaction in each group takes place according to the source of

the formative assessment , the following is an illustration of the role of the teacher and peers with each experimental group:

- The formative assessment source (the teacher):

The teacher's role varies according to the experimental group. In the first experimental group, the teacher provides instructional content through the e-learning environment and provides assessment activities and formative tests, then the learner to interact with the content and performance of activities and formative tests after learning each subject, and then the teacher evaluates what the learner has done and provides immediate feedback.

- The formative assessment source (peer):

The teacher introduces the instructional content in the second experimental group and provides assessment activities and formative tests, his role is limited to guidance only, then each learner performs these tasks and then each learner evaluates each other in the performance of activities through a production guide for the activities specified by the teacher.

The feedback also designed for the formative assessment , after completing the study of each learning topic, immediate and corrective feedback provided to each learner in written form as soon as each learner performs the evaluation activities, each learner allowed to know his result in the formative test immediately, in the first experimental group, while the second experimental group based on providing peer feedback, written messages and comments exchanged between them after the completion of the activities.

According to the instructional objectives of the learning topics, evaluative instructional activities were prepared that the learner performs upon learning the instructional topic individually, simplicity, clarity and scientific accuracy have also been taking into account, and the steps for performing each activity reveal the

extent of their motivation for mastery when identifying these activities.

- Preparing the measuring tool and surveying the opinion of the arbitrators about the validity of the tool for application, and then making the necessary adjustments to it, which represented in The motivation scale for mastery.

- Conducting an exploratory experiment to calculate the validity and reliability of the tool, and knowing the application difficulties, and ways to solve them in preparation for the actual application.

- Selecting the students of the research sample from the third year students and dividing them into two experimental groups.

- Applying the measurement tool to the two experimental groups as an application in advance.

- Applying the experimental pretreatment material to the two experimental groups.

- Re-applying the measurement tool to the two experimental groups as a post application.

- Conducting statistical treatments to ensure the validity of research hypotheses, and interpreting results in the light of these treatments, and presenting recommendations and proposed research.

Building the measuring instrument and its hardware:
A measure of mastery motivation:

Determining the goal of the scale: The aim of the scale is to measure the mastery motivation of students of instructional technology towards instructional situations related to the instructional content, after extrapolating many studies and research related to mastery motivation, such as those of Ali Mustafa (2004), Muhammad Bakhit (2013), Salam Hafez and Mustafa Waheed ،(2018)and the researchers developed a measure of mastery motivation to suit the nature of the instructional technology specialization.

Defining the scale axes: After reviewing the literature and related research, the researchers identified (4) main dimensions of mastery motivation, distributed into (32) sub-skills as follows:

Table (1) Dimensions of the Mastery Motivation Scale - prepared by the researcher–

N.	The dimensions of the scale	The number of vocabulary in each dimension
1	Desire to stand out / preferring the middle.	8
2	Self-reliance / dependence on the lecture and practical lessons.	8
3	Desire to learn / desire to reach the degree of success.	8
4	Tenacity / Love of Easy Work.	8

- **Presenting the scale to the gentlemen of the referees:** The scale was presented in its initial form to (3) from the referees in the field of psychology, and (10) from the judges in the field of instructional technology, in order to verify:

     * Clarity of wording of scale phrases.

     * Scientific validity of scale phrases.

     * Appropriateness of scale phrases for students of the research sample.

The arbitration came according to the following model:

N.	The main dimensions and their sub-phrases	Scientific validity of scale phrases		Clarity of wording of scale phrases		Suitable scale phrases for learners	
		correct	incorrect	Clear	unclear	appropriate	inappropriate

Figure (1) Judging model for mastery motivation scale

The results of the judging resulted in reformulating some of the scale phrases to become clearer, and after making adjustments, the scale is ready in its final form.

Exploratory experimentation for mastery motivation scale:
First, the measure's validity calculated by:
1- The validity of the arbitrators: The validity of the scale was verified by presenting it to (13) arbitrators who are specialists in the fields of psychology and instructional technology, in order to ensure the content of the scale statements and the extent to which they represent what they are measuring, the clarity of the instructions and the method of estimating the grades on the scale. The percentage of agreement ranged between (85% - 100%).

2- Validity of internal consistency: The validity of the internal consistency of the scale was calculated by applying it to a sample of (30) male and female students from the research community and from outside the two experimental research groups, The correlation coefficient is calculated between the degree of each component of the scale and the total score of the axis to which it belongs, as well as the correlation coefficient between the degree of each of the scale items and the total degree of it, as the correlation coefficient between the sum of the scores of each axis and the total scores of the scale as a whole was calculated, and the results were as follows:

- The correlation coefficients between the degree of each item of the mastery motivation scale and the total degree of the axis to which it belongs ranged between (0.90: 0.38), and all of them were statistically significant correlation coefficients at the level of significance (0.01), which indicates the internal consistency of the scale axes.

- The correlation coefficients between the degree of each of the components of the Mastery Motivation Scale and the total score of the scale ranged between (0.91: 0.45), and all of them were statistically significant correlation coefficients at the level of significance (0.01), which indicates the validity of the internal consistency of the scale.

- The correlation coefficients between the total scores of the axes of the mastery motivation scale and the overall score of the scale ranged between (0.78, 0.85), and all of them were statistically significant correlation coefficients at the level of significance (0.01), which indicates the internal consistency of the scale.

Second, calculate the scale invariance:

To calculate the stability of the mastery motivation scale, the researchers used the Cronbach's alpha coefficient method on an exploratory sample of (30) students from the research community and outside the two experimental research groups, where the stability coefficients ranged between (0.66: 0.93) and reached the overall score (0.84), both of which are significant coefficients. Statistically at the significance level (0.01), which indicates the stability of the scale.

Research results:

For the imposition of the search that stated on:

"There is a statistically significant difference at the level of (0.01) between the mean scores of the students of the first experimental group (teacher assessment source), and the second experimental group (source of peer assessment) in the measure of mastery motivation".

To verify the validity of the hypothesis of the comparison between the first experimental group and the second experimental group, the T-Test used to identify the significance of the difference between the two experimental groups.

Table (2) the significance of the statistical differences between the mean scores of the first experimental group and the second experimental group in the post application of the mastery motivation scale

Axis	Total marks	Assessment Group	N.	Average	standard deviation	The calculated value (v)	Degree of freedom	Indication level	Indication type	ETA box	Effect size
e first axis	40	Teacher	25	36.40	1.94	2.255	48	0.02	D.	0.64	Large
		Peers		35.16	1.95						
The cond axis	40	Teacher	25	36.64	2.14	2.869	48	0.001	D.	0.56	Large
		Peers		34.92	2.10						
e third axis	40	Teacher	25	36.04	2.24	0.355	48	0.72	Not d	0.2	Weak
		Peers		35.80	2.53						
fourth Axis	40	Teacher	25	36.00	2.33	1.219	48	0.22	Not d	0.14	Weak
		Peers		35.12	2.76						
Total	160	Teacher	25	145.08	4.88	3.02	48	0.001	D.	0.69	Large
		Peers	25	141.00	4.67						

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Extrapolating the results in Table (2), it becomes clear that the value of (t) calculated for the first and second axis of the mastery motivation scale is a statistically significant value at the level of (0.01) where the value of (t) came (2.55, 2.66) respectively, meaning that there is a difference between the mean scores of the first and second experimental group in favor of the first experimental group, while the value of (t) came in the third and fourth axes (0.35, 1.21), respectively, and it is a statistically not significant value at the level of (0.01), meaning that there is no difference between the mean scores of the first and second experimental group in the previous two axes, while the value of (t) came in the total score of the scale (3.02), which is a statistically significant value at the level of (0.01), meaning that there is a difference between the mean scores of the first and second experimental group in favor of the first experimental group, The effect size "ETA box" was also calculated, and by comparing the results in table (2) with the reference table for determining the levels of effect size, it was found that the size of the effect was large, as the value of the ETA box was for the scale as a whole (0.69)the results also showed that the first and second sub-axes of the scale have a large impact size, as the ETA box value expanded (0.56: 0.64), while the third and fourth sub-axes have a weak impact size, as the ETA box value is (0.02, 0.14). Acceptance and direction of the hypothesis, meaning that there is a statistically significant difference at the level of (0.01) between the mean scores of the students of the first experimental group (source of the teacher assessment), and the second experimental group (a source of peer assessment) in the mastery motivation scale in favor of the first experimental group.

Interpretation of research results:

By presenting the results of the research and based on the data obtained, the researchers interpreted these results in light of the theoretical framework of the research, related studies, learning theories and experimental treatment material, the results indicate that the different source of formative assessment contributed to the development of mastery motivation among students of instructional technology, and the researchers explain it in detail as follows:

The results of Table (2) indicated a high level of mastery motivation for the first experimental group that studies according to the formative assessment source "teacher" in the post application of the mastery motivation scale on the second experimental group that is studied according to the source of the formative assessment "peers". The researchers return this result for several reasons mentioned:

- Diversity of media when presenting instructional content, including texts, sounds, graphics and video clips, had a great role in attracting students' attention and not feeling bored while learning.

- Providing diverse and enriching learning resources that had a role in increasing the mastery motivation for them.

- The interaction and communication tools allowed for effective participation among them through discussions and comments on each other's work.

- Instructional activities have had a role in increasing competition among students continuously and showing challenge when assigned to their performance, so every student tries in various ways and with the help of the various learning resources available in the e-learning environment so that he sees a look of admiration of others when presenting his own work.

- Providing immediate and corrective feedback following the performance of formative tests and assessment activities contributed to reducing feelings of anxiety and increasing self-confidence among students, which led to mastery of learning and an attempt to reach a high level of mastery.

- Appropriateness of instructional design used in building e-learning topics, formative assessment of the e-learning environment, its simplicity and clarity, frequent interactions between students and content, availability of various communication tools and tools for handing over tasks in the environment.

- The formative assessment by the teacher contributed to raising their mastery motivation as a result of students' confidence in the teacher, his experiences, opinions and ideas in addition to the teacher's continuous follow-up to the students and his attempt to improve the performance of students who failed parts of the

content and provide remedial education to treat weaknesses, and provide enriching learning resources for those who want to deepen Understand specific pieces of content.

- This result is consistent with the findings of other studies in the same field, such as the study of Clark, L .; Hassan Hassanein and Muhammad Al-Shehri (2016); Mintert, A. L. (2019).(2011)

Research recommendations:

- Preparing instructional situations by employing corrective activities accompanying the appropriate feedback that help increase the motivation of mastery among students.

- Take advantage of the proposed e-learning content topics to be primarily based upon other instructional programs for the development of other skills.

Suggested research:

- Study the effectiveness of the source of formative assessment with learning environments that differ in their structure from the environment used in current research in developing some aspects of learning.

- Conduct further studies to examine the relationship between learning and other methods to increase the level of motivation mastery of the technology education students.

- Conducting a similar study of the current study with instructional content change may have an impact on the content of the search results.

- Study the effect of the independent variable (source of formative assessment) on other dependent variables.

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