Cooperative Aspects of Learning and its Possible Applications through Intentional Communications for STEAM Education and Research in Distance Learning

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Abstract:- Quality assurance is a key issue in distance learning. This research provides learners with cooperative aspects of learning with its possible applications through intentional communications. Additionally, it provides knowledge and intelligence integration, ensuring a beneficial result based on the features and functionalities verified for teaching and learning on a real-time basis. Cooperative aspects of learning promote high-quality communication consistent with conventional education environments. Distinct from previous styles, they enable the extension of individual abilities, with the possibilities for more advanced comprehension, sharing thoughts with other learners, and maintaining bidirectional interactions between learners and teaching staff, or among learners, without any disturbance to class contexts(: e.g., with a uniform thread of theoretical coherence). It is important for a learner to exploit such a scheme through intentional communications as dynamically conducted confirmation, for a learner-based driving force for an advanced comprehension and for deepening of agreeably mutual understanding. It is challenging to discuss the assessment of qualitative and quantitative views in distance learning. This research proposes, integrated schemes for concept mappingbased assessment on advanced comprehensions in distance learning with a mobile focus. The introduction of subjects which may help readers visualize learners' advanced comprehensions in distance learning, and also for the extensions leading to learning quality with possible applications, has been experimentally challenged. A method for how to successfully integrate vivid human knowledge/intelligence with sensitivity for mutual understanding with less confusion or disturbance between each other should be suggested.

Increasingly, forms of communication that can capture possible applications are being deeply deliberated through intentional communications in distance learning for a more advanced comprehension with a scope for regional to interdisciplinary worth, which is greatly needed, e.g., STEM (science, technology, engineering, and mathematics) to STEAM (by integrating the Arts) education and research. Thus, it can be feasible to introduce cooperative aspects of learning into concept mapping-based assessment for a more objective learning quality with possible applications through intentional communications on a real-time basis. It has to be gradually extended with possible applications as far as both STEAM education and research basics are concerned. It is expected that the form and roles of distance education and learning will rapidly emerge from the current conventional methods and lead to more innovative approaches with possible applications that enable more extensive options in educational and learning processes, including the concept of a life-long educational model, which are required to widely empower respective learners from the perspectives of mentality/intelligence and sensitivity/sensibilities through intentional communications with an orientation for artistic value/cultural significance.

Key-words: - Cooperative Aspects of Learning Learning Quality Platform Availabilities (Robustness Properties/Knacks) STEAM Education and Research

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1 Introduction

Currently, it may not be sufficient to take notes for such methods as up-to-date distance education and learning. A completely digitized and electronic distance education and learning environment is not necessarily a final destination for higher education and learning situations. At the same time there are some

typical e-learning systems in synchronous or asynchronous model environments. It can be said that one of the most important issues is learning quality[1]: What is better understanding? What is deep learning in distance learning environments? Furthermore, what is the reality of learning with its possible applications? In a sense, from a general viewpoint, it may be strictly related to something like the substance of learning.

2 An Introductive Scheme

There exist few breakthroughs for learning quality, especially leading to forms of communication which can support an assessment in scientific fields relating to human culture[2][6][7]. It cannot be said that the mechanisms for knowledge acquisition have become clear thus far. Moreover, there likely exist many methods regarding how to acquire knowledge in detail because it depends largely on the individual learner's brain and their data/knowledge bases[10][12][14].

There are typical basic concepts, concrete schemes and clinical practices on real higher educational sites that have been integrated in cooperative learning. An example of educational core leading scheme with an assessment concept scheme is on a platform, which may be assumed to be principally similar to that on a primitive platform as depicted in Figures 1 and 2.

Fig.1 illustrates a conceptual image focused on the essential parts for a more advanced comprehension of cooperative learning. It can be assumed that anyone, not only teaching staff but also learners with leadership roles can participate as an educator under the necessity of advanced comprehensive processes. As one of the simplest implementations, Fig.2 depicts one of the case studies on experimental schemes for a real educational setting. In Fig.2, including questions and answers to be denoted Q/As (:e.g., by a description of Q/A) teaching staff, staff assistants, and learners are denoted T, Ast, and S1, S2,.., Si, Si+1,.. (where i is an integer), respectively.

In such lectures or seminars conducted on a practical site, it has been verified on a trial platform that it enables learners to develop a more advanced comprehension, which could be assumed to be feasibly based on all of the human cognition to creation through vivid or intelligent activities. It is also important for a learner to make the best use of such a scheme through intentional communications with spontaneously conducted reconfirmation, for a learner-based driving force in a learner's more advanced comprehension or up to being led to mutual learning. In a sense, a learner is making an effort for advanced comprehension, which may incidentally lead to creation through vivid or intelligent activities. Concretely speaking, it is expected that learners will expand each conceptual scope toward mutual based on native sensibilities regarding mutual chats or whispers, which may be helpful aids for the respective understanding through intentional communications with a mobile focus, including additional clues for deliberations of learners' advanced comprehension and may also be co-operating on learning between learners and teaching staff. It is feasible to find a solution for more advanced comprehensions through an assessment scheme: e.g., integration of an assessment concept scheme based on hypothesis and verification and so on. In fact, it might have been practically feasible to give various suggestions or ideas for research participants to obtain a solution through intentional communications in the research case studies. Moreover, it is indicated that it could be meaningful to begin with one of the simplest types of media (e.g., web-based message board) which may be less constrained on media hardware and software logics/operational options for intentional communications among various kinds of multimedia telecommunications[8][11][13][15]. At the same time, it is able to obtain statistical data about advanced status and degree of progress for the respective learners' comprehensions through an assessment concept scheme according to the progressively comprehensive degrees to orient their own abilities toward a creative solution in a digital research educational environment oriented for artistic value /cultural significance.

With an introduction of mobile terminals, which have been more diversely and deeply cultivated under cultural situations, it would be more desirable to provide education about communication ability for cognitive, affective,

or psycho-motored dialogues with a mobile focus on smoother communication skills under their respective potentials.

3 Basic Research on an Experimental Case Study

Multimedia telecommunications designs and experiments have been studied to overcome their limitations on going through an assessment concept scheme on critical thinking and creative thinking in a practical manner[1][2]. Software core leading schemes have continuously been designed for advanced comprehension on the basis of such a software design concept as previously referred to complex software design paradigms[2][9].

Some case studies have also been conducted using an example of the most primitive platforms on a descriptive basis with more technologically directive audio/visual and image extensions in cooperative learning with additional clues for deliberations based on native sensibilities regarding mutual chats or whispers, which have increased in both speed and quality; e.g., Q/A structural analyses, multimedia materials (Q/A contents), real-time statistics and the related R&D results on themes in case studies[2] [3][4][5][10] and so on.

It may be said in passing that any categories of design concepts and themes could be used as an example of the most important and difficult issues and matters in STEAM engineering education to be specifically targeted in the research. It is feasible this may be such a trial case as expected in high-end design complex situations, with mutually shared space for note-worthy and unambiguous recollection for human culture based research expanded from STEM based research: e.g., jotting down/memorandum, data/knowledge base, up to human dynamic memory and human intelligence including sensibilities. In this research, an assessment concept scheme is introduced for advanced comprehension with a mobile focus on interdisciplinary concepts and sensibilities. The introduction of subjects, which may help readers visualize learners' advanced comprehensions, and also for extensions leading to mutual learning quality, has been experimentally challenged. This research should result in a positive suggestion on how to possibly integrate vivid human knowledge and human intelligence including sensibilities. On a trial research platform, forms of communication which are able to capture possible applications both an educational core leading scheme and an integrated assessment concept scheme can be deliberated in distance learning for a more advanced comprehension with a scope for regional to interdisciplinary worth toward high-end design.

It may be important how to attain agreeable/heartfelt mutual understanding between each other (: e.g., educator & learner , learner & learner, and so on), which is able to lead to mutual understanding oriented for high-end design complex situations. At the initial stage it may be needed to confirm about how to design concepts on a trial research platform: e.g. design concept, software concepts and so o.n. And in the research, it may be required to arrange communications channels useful for agreeable/heartfelt mutual understanding through intentional communications between each other from the views of human intelligence/mentality and humanistic sensibilities. Increasingly, in the research, those channels may be able to be arranged through intentional communications, so as to effectively lead participants toward agreeably mutual understanding within every community/group of learners distinguished by the extent of mutual understanding.

Thus, it may be getting extraordinarily near to agreeable mutual understanding through intentional communications oriented for artistic value/cultural significance. It may be essential to bring the purpose home to a reader/learner's mind. In the research there are two core leading steps as follows; step1. advancement of conceptual comprehensions, and step2. deepening of agreeably mutual understanding from the viewpoints of human mentality（/intelligence） and sensitivity（/ sensibilities）in search of possible applications within communities/groups. In the concrete examples, there may be some groups to be divided by an educator according to the essential extent of mutual understanding with an orientation for artistic value/cultural significance. From the viewpoints of practice, there may also be divided into some sub-

leading steps in more details. In a case of practical difficulties, it may be needed to introduce for communities/groups to be divided by online grouping due to difficulties in practice: e.g., communities/groups based on the different theory of value, with cultural gaps, and so on. Thus, it may be feasible to succeed in capturing agreeably mutual understanding to make progress through the processes such an eminent paradigmatic example of typical communications model as shown in Fig.3 to reach the final step able to go to the begining of the stage where somethings like a culturally worthy result may be captured as suggested in a short saying full of meaning to the effect that "The boughs that bear most hang lowest (on an notable haiku poem)." It may not need to say much about to the effect that it may be of importance to enhance even for an experimental case study based on hypotheses-based verification able to be led to cultural computing through intentional communications, also including its integral feasibility in the strict sense of culture. It may be probable to go beyond pursuasion index by the usage of interactive multimedia materials on the previous platform; cf[7]

Additionally, it may be a point of vital importance how to make the identity of culture with its concept even slightly clear so as to clarify what the real essence/substance of culture is, as compared with the ideas struck/hit by Johann Gottfried von Herder (1744-1803) on the current stage within the sphere of cultural zone of the most prosperous European Culture regions around then, even if not propagated about mechanical civilization or (so-called) modern conveniences.

From such an ordinary view of human life to be providentially given in a social community/communal society through the modern culture, it may be proper human being's making efforts for contribution, at least to creative things/doings or not only such inovations but also much more large scale community networked communal society up to be led to socially agreeable activities based on public welfare work without any partialities so as to be essentially heightened culture through the current cultural potentials within the sphere of cultural/environmental zone with an integration of cultural capitals to be originated through such convenient and mentally affluent activities, with an orientation for the larger scale networked communal societies, including socially cultivated regions, respectively.

Not only regarding the categories of historic culture to be manifestly recognizable culture, but also regarding not a few categories of culture may have been evidently founded out through such integrationds as mentioned above (: not a category of civilization). For instance, at the same time, such expressive power culture with expressionism may be affluent and extensive to be dependent on the situations as if it were alive : e.g., about arts, inscription, dialect and so on.

Incidentally in a short word it may be slightly difficult to conduct such a design review that takes into consideration for example of possible applications on high-end design about social community/society standard (architectural) systems and schemes up to not a few communities/societies/country within the sphere of cultural/environmental zone wide systems/schemes which may have been spontaneously perpetuated due to essential culture categories without any kinds of impractical design reviews, even if taking into consideration for the points of politically different views; e.g., legislative bureau, cultural communities/societies and natural living biological systems categories; cf. sociology of Émile Durkheim.

Recently, it has been extended to making an effort for AI software engineering by integrating AI based engineering. There, it differs at large from the conventional software development form and roles of software engineering whereby program coding is made and then the software system to be developed is specified. It should be noted that there may be various categories of complex problems found in design review process, especially in requirements and design specification documents. Thus, conventional software engineering may not be always applicable, and AI software engineering may be at least restricted for these problems above: e.g., multiagent systems, autonomous agents. Therefore, these complex problems may be feasible to be solved by the form and roles of critical and creative thinking necessary for the

definition of system requirements to quality assurance, performance guarantee with securities[2] [7] [16].

Referring to the examples in Fig.3, it has been relatively effectual for more advanced comprehensions through intentional communications with an assessment concept scheme (e.g., integrated schemes) and a trial solution oriented toward cooperative digital creation[7][10][15][16][17], as compared with such constrained communications which are conducted through virtual space, which is needed to take existing conditions into consideration based on the design rules consistent between the virtual space and real space in practical environments.

4 Concluding Remarks

Going forward, experimental case studies with a variety of situations may be needed to verify in detail on the validity of integrated schemes in a wider range, which are closely related to additional clues for deliberations based on more eminent concepts.

On a trial research platform, forms of communication which are able to capture both an educational core leading scheme and an additional integrated scheme are being deliberated in distance learning for a more advanced comprehension with a scope for regional to interdisciplinary worth, which is greatly needed, e.g. STEM (science, technology, engineering and mathematics) to STEAM scientific fields on human culture, especially toward high-end design. And in cooperative learning, it may be expected for each learner to be assisted in more deeply comprehending other learner's intellect and emotion according to mutual understanding to surpass a work in progress to become a work of high-end design, which may be a powerful tool for the respective learners' advanced comprehension. It may be suggested for the respective community members to orient toward higher quality activities in any kinds of active communities, referred to as cooperative aspects of learning with its possible applications on high-end design. That is, an impartial scheme on current community/group activities may be extended and qualitatively integrated with mentality/sensitivity from other community/group activities or also from natural living activities in the world-wide areas for a more profound understanding about how such a harmonious power between human mentality（/intelligence） and sensitivity（/ sensibilities) through intentional communications that have a high potential to affect respective learners' ability.

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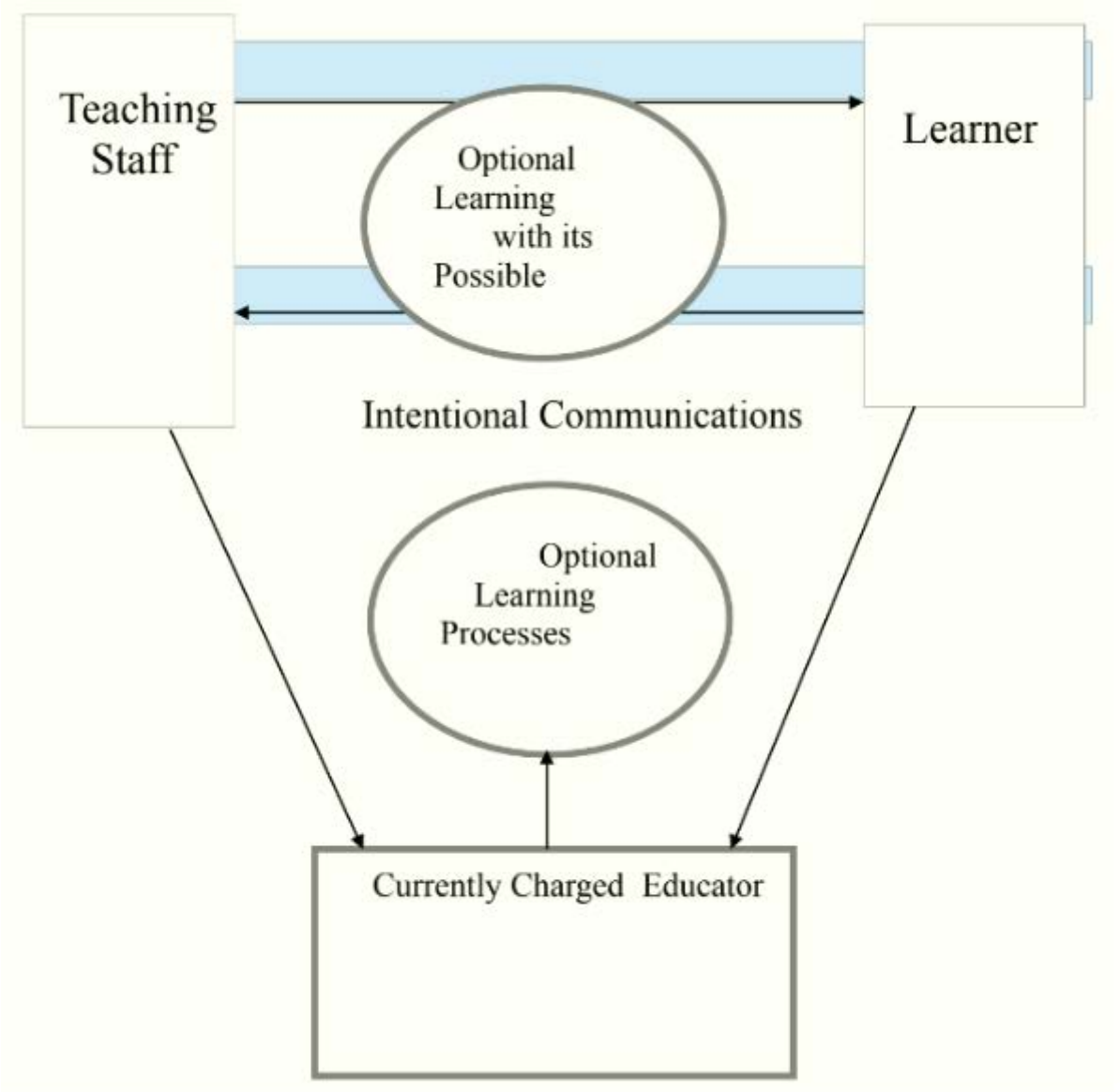

Fig. 1 A conceptual image for cooperative aspects of learning and its possible applications to advanced comprehension.

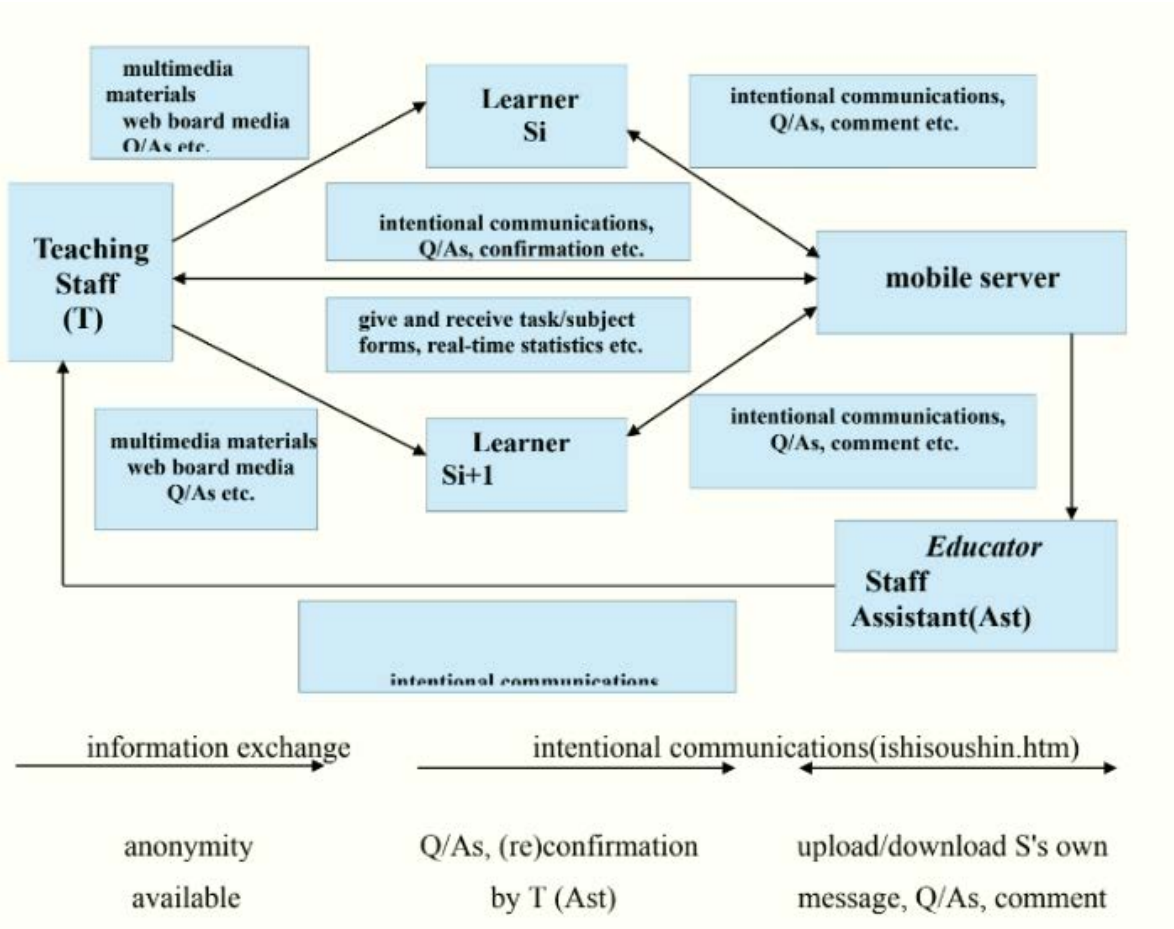

Fig. 2 An example of experimental schemes on intentional communications extended with educator functionality.

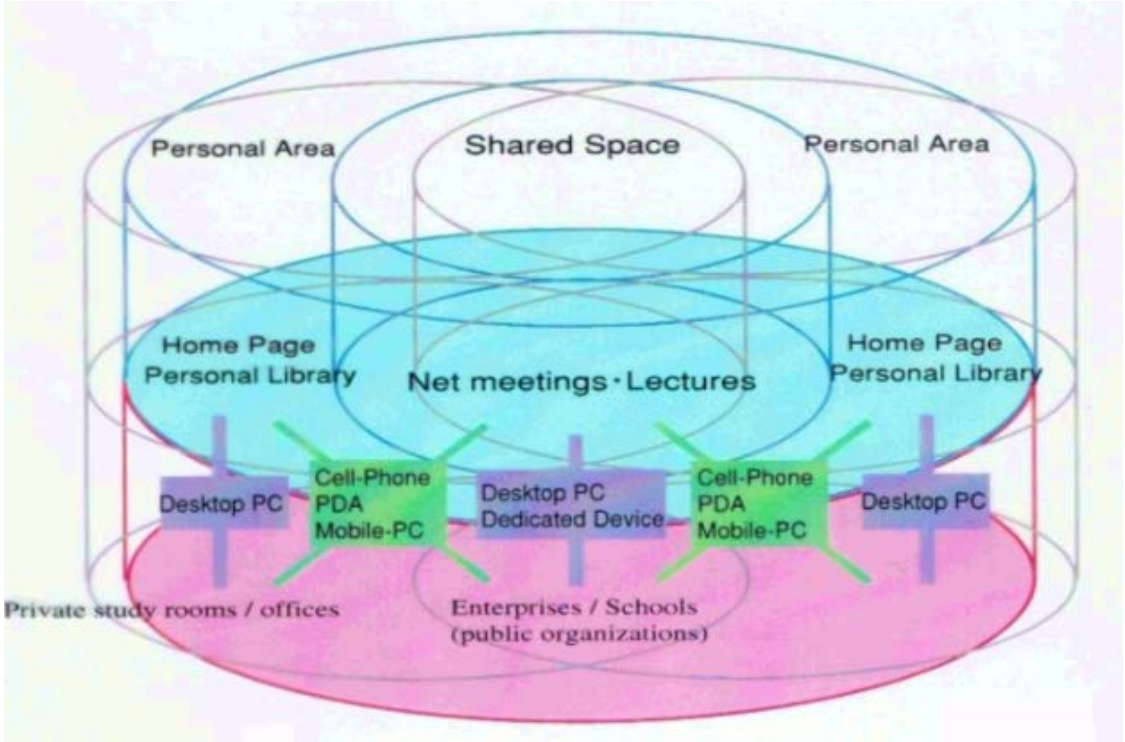

Fig. 3 A typical communications model virtual and real spaces through intentional communications.