The history of the theory of constructivism education essay

Postgraduate Certificate in Education in ComputingCOURSE

ASSIGNMENTUNIT: MSC4301ASSIGNMENT 3

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Lecturer: Mr Paul GaleaIdentify and describe briefly two major learning theories. With reference to a particular topic in the Computer Studies Syllabus and your teaching practice experience, explain how such theories help you in developing a scheme of work or a set of lesson plans. Learning theories help in explaining how one improves his/her knowledge and understand new concepts (Stanley & Jones, 2002). The theory of Constructivism (Brooks & Grennon Brooks, 1999; Christie, 2005; Stanley & Jones, 2002) and the social learning theory (McLeod, 2011; Smith, 2012) are two examples of such theories. The following is a brief explanation of both learning theories, and how these ideas were used when preparing lessons about input/output devices, during my teaching practice. The theory of ConstructivismThis theory explains that one learns through a process of knowledge construction (Christie, 2005; Stanley & Jones, 2002). As explained by Stanley and Jones (2002), a student will not learn and understand complex information by simply listening to what the teacher has to say, but the student must be actively involved in his learning in order to be able to construct his own knowledge. Piaget (as cited in Hergenhahn, 1982) explains that for learning to take place, some basic information is needed to be known. Then, the student's current knowledge and experiences would be modified, thus including the new acquired knowledge (Piaget, as cited in Hergenhahn, 1982). Our aim, as teachers, should be to create " mildly

challenging" (Hergenhahn, 1982, p. 403) activities and tasks that help the students to construct meaningful information (Hergenhahn, 1982; Stanley & Jones, 2002). Thus, instead of just trying to pour out information during the lesson, the teacher needs to act as a facilitator, one who is able to help the students in their learning (Christie, 2005). In order to develop full understanding of the knowledge presented in a particular activity, the students need to think and reflect on this knowledge and ideas (Stanley & Jones, 2002). Furthermore, there should also be a link between what the students learn in class, to their experiences in everyday life, as this will help in instilling a sense of motivation, which in turn will help in the learning process (Grennon Brooks & Brooks, 1993, as cited in Brooks & Grennon Brooks, 1999). During the lessons, the teacher should then determine the level of understanding of each student, rather than trying to examine how much they have learnt the concepts that we have explained (Brooks & Grennon Brooks, 1999). This process helps the teacher in establishing new ways to be used to help the students understand better (Brooks & Grennon Brooks, 1999). During my teaching practice, I was instructed to cover the input, output and special purpose input/output devices, which constitute section 2. 2. 7 (Zammit, 2011), with Form 3 Computing students. Many of the students were familiar with a number of devices, as these are used on a daily bases. I did not simply prepare a number of presentations that could help in transferring the knowledge to the students, because, explained by Piaget (as cited in Hergenhahn, 1982) and Stanley and Jones (2002), such an approach does not lead to fruitful learning, as for learning to occur, students need to construct their own knowledge. Therefore, I tried to come up with

activities and tasks that will be of interest to all the students, while still helping them construct their knowledge about a number of new devices. In the first lesson, I designed an activity that will help the students to learn about different types of keyboards, including special purpose ones. A prompt was given that describes some properties and advantages of a number of keyboards. Students had to use their previous knowledge and the presented information to determine the keyboard type. In the subsequent two lessons, I designed a WebQuest (Christie, 2007) that helped the students in learning about a number of input devices. As explained by Christie (2007), during such an activity, the students can reflect about their thinking and understanding. Furthermore, students can reason and formulate their own ideas with the help of their past knowledge, and current researched information, instead of just accepting what they have been told (Christie, 2007). I have instructed the students to create a presentation, to describe a specific input device by including the following information: A definition; Its use; Some advantages; Some disadvantages; An image that will help the students to identify the device. The students then explained their devices to the class. This helped me realise the students' level of understanding and as explained in Brooks & Grennon Brooks (1999), I could then determine whether such an approach helped in learning. In the following three lessons, the learning objectives were to cover output devices. I tried to adopt a similar approach as used to cover input devices. However, instead of using the internet as a source of information, I prepared a number of presentations, worksheets, quizzes and videoclips that helped the students to construct their knowledge, while working in pairs or groups, and then

sharing this information by explaining it to other members of the group. My role in these lessons to be, as Christie (2005) explains, a facilitator, by designing resources that help in the learning process and during the lesson my role was to go around the lab and help students in their difficulties. The Social learning theoryBandura (1977, as cited in Smith, 1999; 1977, as cited in McLeod, 2011) explains that behaviour is learnt when interacting with the surrounding environment. Bandura (1977, as cited in Smith, 1999) further explains that one should first observe other's behaviour, and then model his behaviour based on these observations, as this will help individuals learn what happens whenever certain actions are performed. Wenger (2010) states that learning occurs in a social context through interactions and that this social system can help in the fostering of communities of practice. Hanks (1991, as cited in Smith, 2012) explains that this model emphasizes on how social interactions can help in learning. These communities are composed of a number of persons who are willing to interact and work together with the aim of learning (Wenger, 2006). In order for such a learning community to form, Wenger (2006) explains that the following three characteristics should be present i) a domain, ii) a community, and iii) a common practice. Therefore, a group of people willing to learn together must first have a common subject or topic of interest, the domain, together with a number of tools, resources and ways of handling proposed problems, that can be used in the learning process, the practice (Wenger, 2006). Furthermore, the persons participating should be willing to learn from others, and to participate together in tasks, activities and discussions, while sharing the acquired knowledge with the rest of the community (Wenger, 2006). I have

used the idea presented above during my teaching practice. In fact, I tried my best to develop tasks and activities in my lesson plans that helped built this type of practice. For instance, in the first lesson, during the keyboard activity, I encouraged the students to discuss the ideas and opinions with each other before guessing the correct answer. In this way, they were sharing their knowledge and ideas, as many were quite knowledgeable about the subject. Thus, the students ended up learning from each other as described by Wenger (2006). As explained previously, the second and third lesson plans focused around the WebQuest and presentations. Even though the WebQuest was carried out individually, the students then still shared their knowledge with the rest of the classmates during the presentation as this sharing of knowledge helped others to understand a number of input devices. Additionally, the students also had the opportunity to work together in class to complete a worksheet containing information learnt during the lesson, so that they could help each other out when in difficulty. The fourth lesson was quite interactive as we discussed electronic cards as a source of input, together with speakers and a number of printers as output devices. The sharing of knowledge was quite evident in this lesson, as many students knew quite a lot of information on the devices and so started discussing, sharing information and helping each other understand, as explained by Wenger (2006). The fifth lesson was centred mainly on pair work activities, that helped the students learn about printers, and then, each pair had to share the constructed knowledge to the rest of the class. In the sixth and final lesson plan, I focused on group work activities that helped the students to learn more about visual display units. Through the available

presentations, matching game and quizzes, the student could work and learn together. This paper described two learning theories, the constructivist (Brooks & Grennon Brooks, 1999; Christie, 2005; Stanley & Jones, 2002) and the social learning (McLeod, 2011; Smith, 2012) theories, in particular the idea of communities of practice (Wenger, 2010) and how these helped me design effective lesson plans, incorporating a number of tasks and activities, and resources that could help the students in learning about input and output devices. I believe that the way I tried to adapt this theory into practice, was quite effective as in this way, the students were actively engaged in their learning, and as explained in Christie (2005) and Stanley and Jones (2002), this helps in the learning process.