The influence of Industrial Revolution 4.0 in the implementation of the learning factory at the University of Malaysia Pahang

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ABSTRACT

Purpose: This study explores the impact of Industry Revolution 4.0 (IR4.0) on learning factory implementation in Universiti Malaysia Pahang (UMP). A learning factory is an action-oriented approach to teaching with participants acquiring competencies through structured self-learning processes in a production–technological learning environment. It integrates different teaching methods with the main objective of moving traditional teaching methods to become closer to real industrial problems. However, there is still limited information that can be used to evaluate the impact of IR4.0 on its implementation in UMP. Therefore, this study focuses on exploring the challenges faced by UMP in developing their learning factory and examines the effectiveness of UMP Learning Factory as a new teaching and learning process to support Industry 4.0. **Design/methodology/approach:** First of all, identifying a problem was done, and information regarding the topic was obtained via research from various sources. Example of sources is online journals, books, the Internet and others. It is essential to understand the rationale behind why the research should be carried out as well as the objectives of the study in relation to the topic of interest. After that, a survey of the relevant literature was carried out to compile more pertinent material and run it through the lens of the selected subject. It makes the process of establishing a theoretical framework easier, and it also improves one's knowledge of the research being done. The next step in the process involves selecting responders based on the research. In order to calculate the appropriate sample size for this study, we must identify the entire population so that we can ensure that the findings we obtain are reliable. The entire population are first filtered based on the purpose of the research, and only then is it possible to establish the size of the needed sample of respondents. This research study's data gathering techniques consisted of five steps; however, in this particular study, the researcher only employed two approaches, which focused on individual interviews and semi-structured interviews, respectively. In order to address both the study purpose and the research questions, the interview questions that were developed were meant to relate to one another. During this interview procedure, the interviewees will have the option to elaborate or supply an increasing amount of pertinent data and information. Participants in the interview who have accumulated a significant amount of experience in the relevant sector are better positioned to provide both their personal and professional perspectives. The researcher will utilize audio to gather the script from the responder so that they may collect the data for analysis. The researcher is able to find the precise data analysis from the responses with the assistance of this programme. As a result, the researcher's question to the responders can be considered credible and genuine. Each respondent may read a particular question in the questionnaire in the same manner. As a result, although the question may be trusted, this fact is mostly irrelevant given that it lacks internal validity and hence does not make it possible to answer the research topic. In conclusion, the findings of this study are analysed, and conclusions are drawn from them. **Findings:** In order to explore and answer research questions that are tailored to research objectives, the purpose of this study is to investigate such questions. The primary purpose of

this study is to evaluate the influence that Industry 4.0 will have on the instructional methodology that will be utilized at UMP. Regarding the second aim, the purpose is to investigate the difficulties that the Universiti Malaysia Pahang encounters in the process of creating the Learning Factory. The final goal is to investigate how well UMP Learning Factory performs as a novel approach to education and training that is intended to assist Industry 4.0. The University of Malaya in Penang (UMP), which is widely regarded as one of the premier educational institutions of its kind in Malaysia, has recently implemented a learning factory as one of its pedagogical approaches. The university's deployment of the learning factory is very recent, and as such, there is room for improvement to make the most of the potential offered by this instructional approach. However, the findings of this research indicate that there is a favourable influence on both learning and teaching. The influence of the implementation of Learning Factory, which is becoming one technique of educational reform, is one of the most important factors to consider. According to the study's findings, UMP has successfully developed a learning factory that has a major influence on the learning process and is extremely good at what it does. The student benefits from an enhanced teaching and learning experience as a direct result of the contribution made by the learning factory. When it comes to generating a learning component based on the result, several obstacles have been identified. If UMP or other institutions intend to create a new learning factory, the problems might be considered factors to consider. In the teaching and learning process context, it has been demonstrated that a learning factory is particularly successful. The learning factory approach is one of the teaching techniques that makes the students understand better and have the experience of handling and controlling the equipment. Because this method introduces the hands-on approach, it is one of the teaching methods. The learning factory method is one that, in its most fundamental form, may be particularly beneficial for students to prepare themselves for the arduous process of joining the workforce. The classroom setting will be quite similar to that of a factory, and the student will improve their general collaboration. In addition to this, they will be able to operate machines and have knowledge regarding the machines that are found in the learning factory. The learning factory makes a significant contribution to the knowledge transfer process in UMP by facilitating the development of a deeper comprehension of certain bodies of information. When compared to more traditional methods of transferring information, the student will have a much easier time comprehending the material that is taught to them through the use of the hands-on learning technique. **Originality/value:** This study gained some information about the impact of IR4.0 towards educational transformation, which is expected to give positive results. Basically, this research will provide further explanation about IR4.0 and educational transformation in UMP focus on learning factory. Generally, the implementation of IR4.0 in education will produce a positive result and help the students in the future. The result from this case study will hopefully be beneficial to society. The finding from this research will be used as references to all, especially top management and technical staff of UMP, for further understanding of the impact of the implementation of the learning factory. While conducting this research, seven respondents were selected from the two faculty with their own learning factories, Faculty of Industrial Management (FIM) and Faculty of Technology (FTEK). The researcher targeted lecturers and technical staff as their respondents. The overall result from the interview session was analysed. All the result is based on the interview answer to the researcher's question

KEYWORDS
Educational transformation; Industrial revolution; Learning factory

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