

## Academic staff attitudes and use of ICT: a case study

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**ABSTRACT:** In this article, the authors evaluate the acceptance of self-assessed skills and the use of information and computer technology by the academic staff of the Faculty of Production Engineering at the University of Life Sciences in Lublin, Poland, in the academic year 2016/17. The low use of the virtual learning environment (VLE) by members of staff in the Faculty was observed and prompted these investigations. A structured questionnaire was used as the tool for collecting data. The data indicated that the assumed hypothesis that the lack of computer skills and the adverse attitude towards ICT were the main reasons for members of staff not using the VLE in their teaching, was incorrect. The self-assessment of computer and Internet application skills by academic staff was extremely high. Also, their attitude towards the application of IT in teaching was very positive. There is a clear need for further investigation to find the reasons and to recommend remedies.

### INTRODUCTION

Information and communication technology (ICT) cover a lot of ground and includes both hardware and software. It may be surprising to some that it also covers telephones, fax machines and photocopiers, which together with the more modern digital technologies and Internet, have changed the way of living.

Presently, there is a growing emphasis in educational policies on the integration of ICT in teaching. This is due not only to the rapid development of ICT, but also to the pursuit of quality teaching practices in improving student outcomes. That brings revolutionary changes in the traditional teaching process [1]. However, not all academic staff are ready to embrace the changes, especially the use of educational learning platforms [2]. That may be also due to some deficiencies in staff knowledge and skills in ICT and, therefore, reluctance to embark on something new, which involves computers. Many teachers do not have all the necessary skills to integrate ICTs in teaching processes and consequently use the technology only as a tool to improve the visualisation of their lectures [3]. The attitudes and acceptance of the application of ICT in teaching is also a serious factor motivating and affecting its actual use [4-6].

The preliminary study of the use of the virtual learning environment (VLE) in the Faculty of Production Engineering at the University of Life Sciences in Lublin, Poland, revealed that a limited number of staff actively use the platform in their teaching. The University of Life Sciences in Lublin, Poland uses Moodle as the VLE, administered centrally for all five universities located in the city.

The statistics for the academic year 2016/17 show that only two members of staff out of 158 were active on the platform and they were running three courses out of the 423 courses offered that year. All three courses offered via the platform were actually courses on the application of e-learning. Lack of computer abilities and adverse attitude towards ICT were considered as possible reasons for not using the VLE.

### OBJECTIVE, DATA AND METHODOLOGY

The objective of this study was to assess the general use and attitude of academic staff towards ICT. That was a preliminary study with an objective to determine the direction of the further investigations to be conducted on both staff and students in the future. The major problems raised were related to the following issues:

1. What kind of ICT equipment is used by staff?
2. How often and for what purposes is the ICT equipment used?
3. What ICT skills staff is claiming to have?
4. How has ICT influenced teaching, and how is it used?

The study included 53 academic staff members of the Faculty of Production Engineering at the University of Life Sciences in Lublin, Poland. The number of answers constituted 34% of the total number of academic staff currently employed in the Faculty.

The survey was used as a research method and the data were collected by a questionnaire. The survey is one of the more popular methods in social studies research and applies many techniques, including questionnaires, interviews or analysing documents [7].

Surveys are popularly used as a research methodology where a sample of the population is studied to determine its characteristics and, it is then inferred that the population has the same characteristics. Another purpose of surveys may be to provide scientifically gathered information to work as a basis for the researchers for their conclusions. The study used a survey and a questionnaire to collect information and draw conclusions for the direction of further investigations into attitude and application of ICT of academic instructors.

The survey was administered via e-mail and it consisted of 44 questions grouped in five sections with the following headings:

1. Respondents' profile;
2. ICT use and skills;
3. Computer attitude and anxiety;
4. Internet self-efficacy;
5. Application of ICT in teaching.

## RESULTS

The basis for the deductions in the current study was the empirical data collected through the questionnaires administered in the academic year 2016/2017. There were 54 responses in total with respondents having an average age of 45 years and average work experience of 20 years (in both cases, the standard deviation was 12). There were twice as many male than female respondents, which did not come as a surprise since the male to female academic staff ratio in the Faculty is approximately 2 to 1.

### Use of ICT

All respondents regularly used IT devices, with laptops/notebooks being more popular than tablets (Figure 1). However, most had more than one device, with the most (42%) using three devices (Figure 2), with the greatest popular combination of desktop-laptop/notebook-smartphone, with 50% frequency. Surprisingly, only 4% of the staff (two people) indicated the use of other IT devices, listing multimedia projectors, forgetting or not realising, that printers, faxes or even ordinary landline phones are also included in IT.

More than half of the respondents (57%) reported *constant use of IT* with more than third using it *a few times a day* (36%); making a total of 93% who presumably check their e-mails on computers or smartphones almost continuously (Figure 3).

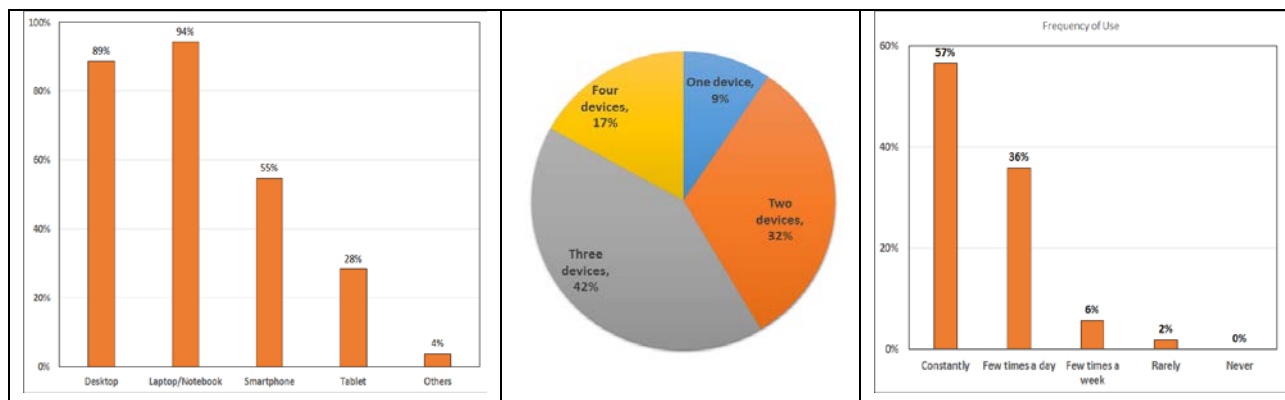


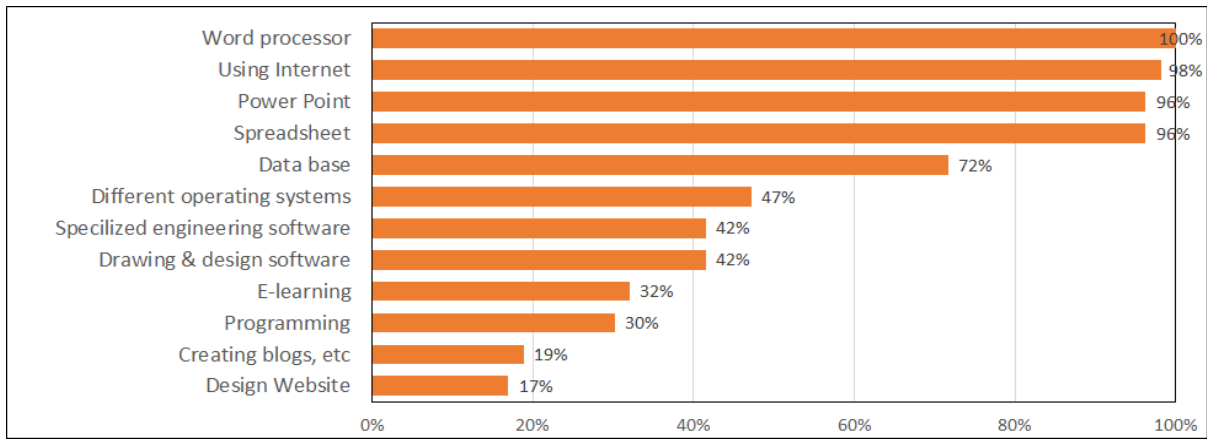
Figure 1: Type of IT devices used.

Figure 2: Number of devices used.

Figure 3: Frequency of IT use.

### Technology Skills and Use

The respondents claim wide skills in terms of IT. Especially unexpected was the number of staff who claimed knowledge and skills in use of data bases (72%) unless the use was limited to looking through rather than actually creating them (Figure 4). However, on the other hand, the number familiar and comfortable with programming was rather low (30%) considering the technical inclination of the Faculty.



Figuer 4: IT skills.

Searching for information for research came as the most popular use of IT (83%), followed by work communication (70%) (Figure 5). Text processing was ranked sixth, with 45% of returns among the three most popular IT uses. Suprisingly, *calculations* came above text processing with 49% of choices.

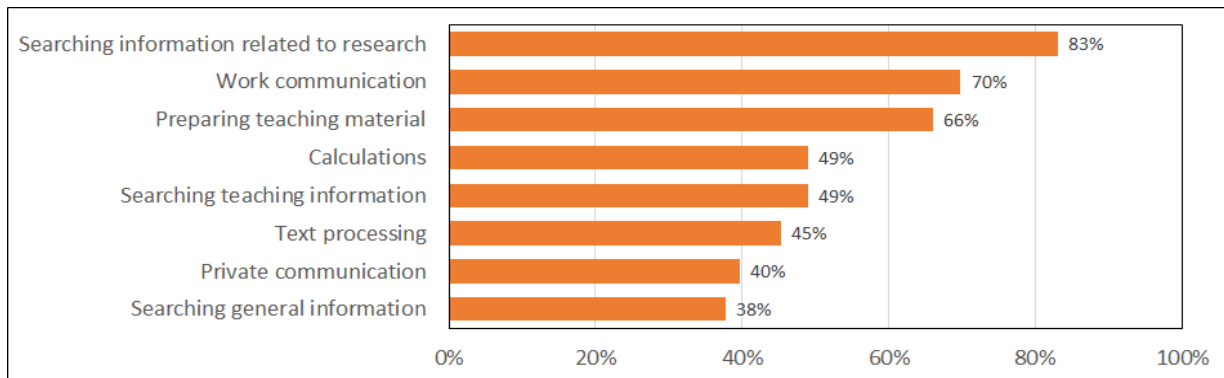


Figure 5: IT use.

Private use, whether intentionally or not, appeared to be not as important as work-related use of IT. *Private communication* and *searching general information* came last in the choices of most popular IT use (Figure 5).

In terms of private vs work use of IT, the questionaair requested staff to rank their use of IT on the scale from 1 (*private only use*) to 5 (*work only use*). As shown in Figure 6, IT use was definetly skewed towards work applications, with none of the respondents selecting numbers 1 and 2, only 23% selecting 3 and 75% selecting either 4 or 5, on a 5-point scale.

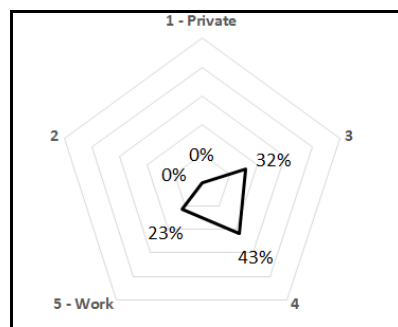


Figure 6: Private versus work use of IT.

### Computer Attitude and Anxiety

The survey requested answering questions regarding computer attitude and possible anxiety related to its use (Figure 7). The respondents had a very positive attitude towards the use and application of the computers with 96% stating that they make a person more productive. The great majority did not consider working with computers to be difficult (96%). Computers did make them uncomfortable (92%) or suffer from sociological stress (94%). Computers were also not considered to be the domain of young people (87%). However, up to 40% of the respondents believed that working with computers requires technical skills, with 9% being neutral.

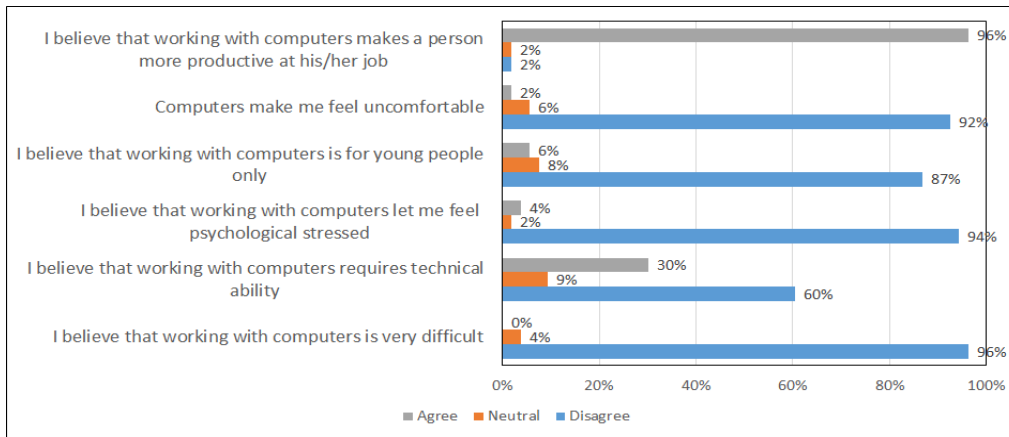


Figure 7: Computer attitude and apprehension.

### Internet Self-efficacy

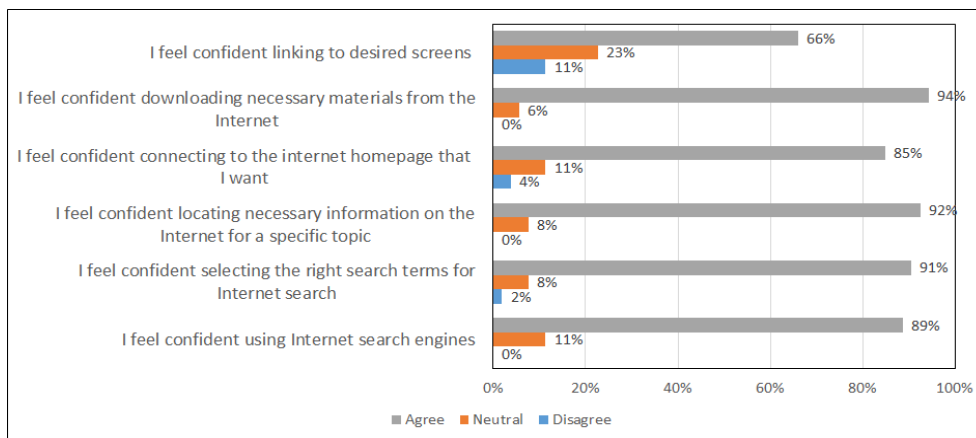


Figure 8: Internet use confidence.

The confidence in using the Internet was very high (Figure 8). The great majority of the respondents felt assertive in all questions related to Internet use; that applied to searching, locating, linking and downloading desired material.

### Application of ICT in Teaching

The respondents described IT as having a very positive influence on their teaching (Figure 9). IT has been listed as having a big influence on teaching style (73%), empowering the instructor in the teaching process (88%), influencing teaching processes positively (92%). The huge majority declared that they often use IT for class delivery (75%), and to find (96%) and to prepare teaching material (83%), as well as for communicating with students (81%).

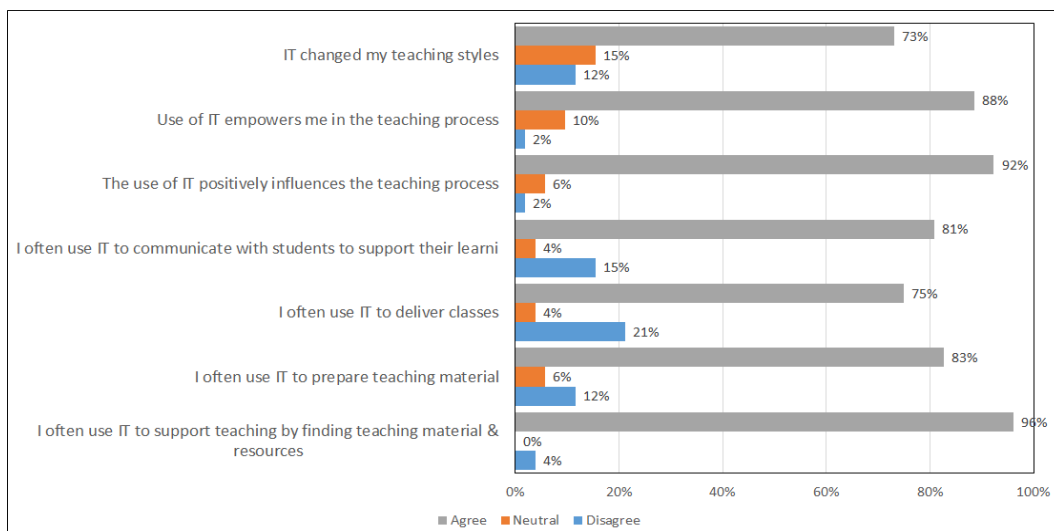


Figure 9: Application of IT in teaching.

The great majority of staff were very positive about the use of IT in teaching; using it, planning, and encouraging or even forcing students to use it (Figure 10). They were also positive about the University having a virtual learning environment (VLE) platform, with 79% wishing for it (Figure 11). However, they were not that sure whether the University actually had one; the most neutral answers (40%), and the distribution of responses was similarly positive (35%) and negative (35%). The actual use of VLE was declared to be 36%, oddly slightly more than those who answered positively whether the University has a platform.

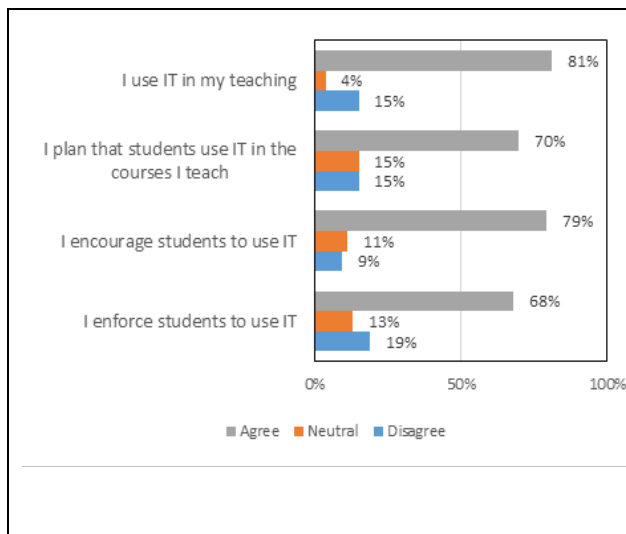


Figure 10: IT in teaching.

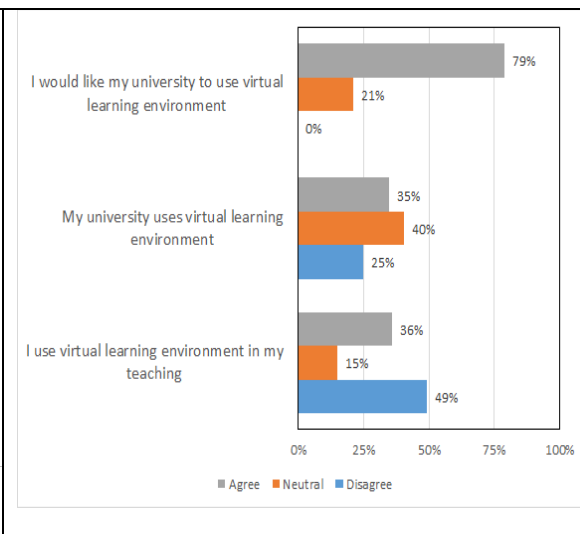


Figure 11: Use of VLE.

To complement the choices regarding the use of IT in teaching, most respondents listed blended delivery, with face-to-face lecturing with on-line material as the preferred method (58%) (see Figure 12). However, the sole face-to-face method was also popular with 45%; almost nobody opted for any on-line learning, neither synchronous or asynchronous (both 2% each).

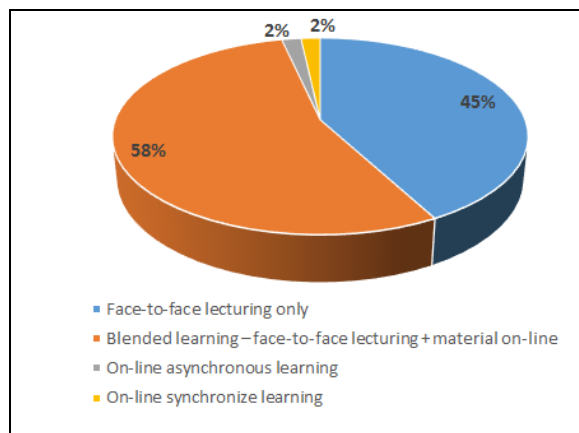


Figure 12: Course delivery preference.

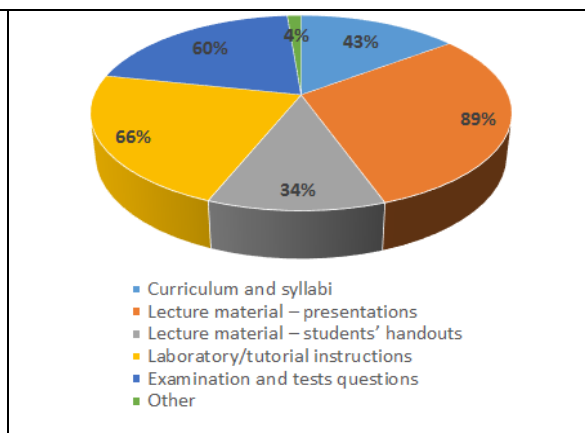


Figure 13: IT prepared materials.

The questionnaire requested that respondents indicate what teaching material they had prepared using IT (Figure 13). The majority of prepared lecture material was in the form of presentations (89%), two-thirds (66%) used it for preparation of laboratory/tutorial instructions with only one third to prepare students' handouts (34%). Also, the number for preparation of curriculum and syllabi was low (43%); although for 60%, the preparation of examinations and test questions also appears to be low.

### SUMMARY AND CONCLUSIONS

The data collected indicated that the assumed hypothesis that the lack of computer skills and the adverse attitude towards ICT were the main reasons for members of staff in the Faculty not using the VLE in their teaching, was not correct.

The respondents used a variety of IT devices with many (42%) using three devices, with the most popular pattern of desktop-laptop/notebook-smartphone (Figure 1 and Figure 2). The majority did not recognise other popular appliances; for example, multimedia projectors or printers, as ITC devices. A huge majority (93%) used IT either constantly or at least a few times a day, showing a positive attitude and acceptance of the technology (Figure 3).

The self-assessment of computer and Internet application skills was extremely high, with a great majority of staff declaring good knowledge of different popular computer software packages and use of the Internet (Figure 4 and Figure 5). A bit surprisingly, text processing was not ranked as the most popular use of IT with *calculations* coming above (Figure 5). Most respondents declared the use of IT mostly for work rather than for private use (Figure 6). They were also very positive about the general use of computers with no problems reported in terms of psychological stress or feeling uncomfortable related to working on computers (Figure 7). The Internet skills were self-assessed as high for finding, accessing and downloading required information (Figure 8).

The survey proved that there was a very positive attitude towards the application of IT in teaching. The categorical majority declared that IT changed their teaching styles, empowered them and positively influenced the teaching process. They often used IT to support teaching for preparation of the material, finding teaching material and resources and both delivering classes and communicating with students (Figure 9). IT was almost evenly used for the preparation of curriculum and syllabi, lecture materials (both handouts and presentations), laboratory/tutorial instructions and examinations and test questions (Figure 13). The respondents supported not only the use of IT in teaching, but also planning the use and encouraging or even forcing students to use IT (Figure 10).

In terms of course delivery, the majority declared their preference for blended learning, face-to-face lecturing and on-line material (Figure 12). However, it is not clear how the on-line part of the blended learning should be achieved. The virtual learning environment (VLE), available to members of staff in the form of Moodle, is hardly used. As stated before, only two members used it for three courses in the academic year 2016/17. Remarkably, the majority of respondents (79%) wanted their university to use VLE (Figure 11). Bizarrely, only 35% actually answered positively whether the University used VLE, and even more astonishingly, 36% declared that they indeed use VLE in their teaching.

The remarkably low use of VLE by members of staff in the Faculty of Production Engineering at the University of Life Sciences in Lublin, Poland, was the actual trigger for the investigations. The assumed hypothesis was that the reason for low usage of VLE was inadequate skills and adverse attitudes towards ICT. However, the study clearly indicates that the hypothesis was wrong and that there are deeper reasons for staff not applying VLE in the teaching process. There is a clear need for further investigations to find the reasons and to recommend remedies.

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