Recommendations for Effective University Study Based on Students’ Point of View

Jana Matošková, Michaela Baňařová, Martina Polčáková

Faculty of Management and Economics, Tomas Bata University in Zlín, Zlín, Czech Republic

Ing. Jana Matošková, Ph.D., Department of Management and Marketing, Faculty of Management and Economics, Tomas Bata University in Zlín, Mostní 5139, 760 01 Zlín, matoskova@fame.utb.cz

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The research examined what university students recommend for effective university study and whether their recommendations differ by gender, faculty or study program degree. The research was based on 985 questionnaires. The following words were most commonly used in advice for freshmen: Go, Lectures, Learn, Continuously, Be, Prepare, Information, Have, Do, Materials. The fundamental advice seems to be: to go to lectures, to have needed materials and information and to learn and prepare continuously. Some stated recommendations react to the development of information and communication technologies and the massive usage of the Internet (such as obtaining a laptop and a cell phone or setting up a Facebook profile). Quite a lot of advice was connected with health, such as to sleep enough, to eat regularly, not to smoke, to relax and to restrict alcohol consumption. The recommendations gained in this survey were categorized by thematic similarities to characteristics, knowledge, skills, behaviour and background. The findings highlight the fact that given recommendations for effective study differ by the respondent’s gender and faculty. Women concentrated more on recommendations on how to behave and men mentioned more often what personality characteristics are important for effective university study. Students of the Faculty of Multimedia Communications highlighted the necessity of creativity and practical experience more often than others.

Keywords: university students; effective study; behaviour strategies

A decision about university study poses an important point in professional career building. Statistics show that those with a university diploma have a better possibility to find placement on the job market compared to those with a lower level of education, because the former are probably considered to be better equipped with the skills required in the labour market. On average across OECD countries, the employment rate is 82% for adults with a bachelor’s or equivalent degree, and 87% with a master’s or equivalent degree (OECD, 2016). Additionally, on average, adults with a tertiary education earn significantly more than those with upper secondary education across OECD countries (OECD, 2016). Finally, individuals with higher educational attainment are more likely to report satisfaction with their life (OECD, 2016). However, 40% to 50% of all students never complete their programs of study (Donohue & Wong 1997 as cited in VanZile-Tamsen, 2001). For example, OECD (2016) reports that on average 41% (37% in the case of the Czech Republic) of students who enter a bachelor’s or equivalent programme graduate within the theoretical duration of the programme. Within three years after the theoretical duration of the programme, the average completion rate increases to 69% (60% in the case of the Czech Republic). According to Matějů et al. (as cited in Fučík & Slepičková, 2014) students think that weaknesses of public university education in the Czech Republic are low motivation and insufficient connection to practice. Another Czech study (Mouralová & Tomášková, 2007 as cited in Fučík & Slepičková, 2014; Kleňhová & Vojtěch, 2011) mentions the following reasons for study drop-outs: dissatisfaction with studies and poor motivation, unsuitable choice of study field, priority for other activities and study demands. Fučík and Slepičková (2014) state that a big proportion of drop-outs can be explained as a result of the postponed choice of the study programme or as the conflict between various spheres of life.

Many students terminate their studies in their second study year (Kleňhová & Vojtěch, 2011), which might indicate some troubles with adaptation to the university setting. A successful adaptation to university could be defined by such criteria as remaining in university, enjoying psychological well-being and performing well academically (Julia & Veni, 2012). Further, a successful adaptation to university is related to academic success, because the findings of Yazedjian et al. (2008) indicate that salient components of university students’ success are earning good grades, feeling socially integrated and being able to navigate the university environment. In addition, effective university study is related to a decision about time spent on studies as mentioned by Bogaard (2012). Too little time will get the student into trouble. On the other hand, more time may not necessarily be better for a student’s success.

# Literature Review

A whole range of factors influence the facts: 1) whether the chosen university will be completed by a student, 2) how well the student will do during his/her studies and 3) how useful the study will be for the student’s future. Leaving aside the exterior factors mentioned e.g. by Aitken (1982) – such as family background and family support, the physical environment in which the student’s academic work is done, teachers and university peers – an important role is played by personal characteristics. Personal characteristics most often mentioned in the literature include:

* **inner motivation to study** (Mbuva, 2011; Nonis, Hudson, Philhours, & Teng, 2005; Novosád, 2015; Prevatt et al., 2011; Schweinle & Helming, 2011);
* **attitudes** (Nelson & Johnson, 2011; Schweinle & Helming, 2011) – such as *willingness to study* (Insch, McIntyre, & Dawley, 2008; N. Leonard & Insch, 2005; Wiese, Freund, & Baltes, 2002), *acceptance* *of responsibility* for one’s own education (Robinson, 1993) and *positive attitude* *to uncertainty* (Tschannen-Moran & Nestor-Baker, 2004);
* **characteristics and temper** – such as *adaptability* (Hogan et al., 2010; Nonis et al., 2005), *proactivity* (Eby, Butts, & Lockwood, 2003; Nonis et al., 2005), *ambitiousness* (Newport, 2005; Nonis et al., 2005; Spence, Pred, & Helmreich, 1989), *optimism* (Nonis et al., 2005), *industriousness* (Nonis et al., 2005; Robinson, 1993; Spence et al., 1989), *persistence* (N. Leonard & Insch, 2005; Nonis et al., 2005; Simpson & Altman, 2000), *self-reliance* (Lane & Gibbons, 2007), *conscientiousness* (Hassan, 2013; Judge, Higgins, Thoresen, & Barrick, 1999), *self-confidence* (Lane & Gibbons, 2007; Prevatt et al., 2011; Rasdi, Ismail, Uli, & Noah, 2009; Tschannen-Moran & Nestor-Baker, 2004), *considerateness* (Lane & Gibbons, 2007) and *inquisitiveness* (Tschannen-Moran & Nestor-Baker, 2004);
* **abilities** – such as *ability to concentrate* (Bogaard, 2012; Nonis et al., 2005; Prevatt et al., 2011), *reflective ability* and *ability to react to changes and mistakes* (Nonis et al., 2005) and *intelligence* (Bozionelos, 2004; Lane & Gibbons, 2007; Nabi, 1999);
* **skills**: 1) *study skills* (Newport, 2005; Nonis et al., 2005; Prevatt et al., 2011; Robinson, 1993; Tschannen-Moran & Nestor-Baker, 2004) – e.g., effective note-taking, effective reading of study materials, effective writing of essays and research works, the ability to recognize important information; 2) *organizational and self-regulatory skills* (Grunschel, Schwinger, Steinmayr, & Fries, 2016; Hogan et al., 2010; Insch et al., 2008; Kim & Seo, 2015; N. Leonard & Insch, 2005; Mbuva, 2011; Prevatt et al., 2011) – among which there are self-control, time management, stress management; 3) *interpersonal skills* (Hogan et al., 2010; Insch et al., 2008) – mainly the ability to choose the right way of communication, the ability to form friendships and preserve them, the ability to avoid people that can be harmful; 4) *skills related to problem solving* (Mbuva, 2011; Nonis et al., 2005; Wiese et al., 2002).

Some studies (e.g., Krčmarská, Černý, Vaněk, & Magnusková, 2014; Zelenka & Ryška, 2012) suggested also a competence model of university graduates. A competence model defines the most important personal characteristics and clusters related abilities, commitments, knowledge and skills that enable a person to act effectively in a labour market after student’s graduation. This is related to the fact that a supplementary part of academic success could be finding a job connected with the field of study which is in addition appropriate for the achieved level of education. Therefore, demands of the labour market imposed on job applicants should be projected into educational programs of universities (Krčmarská et al., 2014).

Personal characteristics are reflected in behaviour. Effective study behaviour mentioned in the literature can be categorized as follows:

* **study organization** (mainly related to the schedule arrangement) – a successful student can *arrange classes* to be able to share them *with friends* (N. Leonard & Insch, 2005; Yazedjian et al., 2008), *choose teachers* who grade favourably (Somech & Bogler, 1999) and *arrange schedule* so that the courses are well linked (Fryjaufová, 2006);
* **tasks and duties** – students aid their success if they *finish the tasks on time* (Insch et al., 2008; N. Leonard & Insch, 2005; Sternberg, Wagner, & Okagaki, 1993), *attend* *school regularly* (Insch et al., 2008; Yazedjian et al., 2008) *and on time* (N. Leonard & Insch, 2005; Sternberg et al., 1993), *fulfil* their *tasks and obligations* (N. Leonard & Insch, 2005), *voluntarily participate in student organizations* (N. Leonard & Insch, 2005), *attend lectures even if they are not obligatory* (Fryjaufová, 2006; Newport, 2005) and *work along studies* (Newport, 2005);
* **preparation for the classes and learning** – e.g. *regular learning* (Insch et al., 2008; N. Leonard & Insch, 2005; Somech & Bogler, 1999; Yazedjian et al., 2008), *consultations with the teacher* (Insch et al., 2008; N. Leonard & Insch, 2005; Somech & Bogler, 1999; Sternberg et al., 1993; Yazedjian et al., 2008) and *checking notes* from the lessons (N. Leonard & Insch, 2005; Somech & Bogler, 1999), *reading the recommended texts* (Sternberg et al., 1993), *consultations* of one’s expectations and requirements in courses *with older students* (Insch et al., 2008; N. Leonard & Insch, 2005; Somech & Bogler, 1999), *using one’s own study tools* when studying such as graphs, highlighting, underlining (Fryjaufová, 2006; Prevatt et al., 2011), *starting with one’s notes from lectures and seminars when preparing for the exams* (Fryjaufová, 2006), *alternating self-study and group-study* (Newport, 2005) and *searching for information* on current affairs (Newport, 2005);
* **classes** – *active participation* in classes (Insch et al., 2008; N. Leonard & Insch, 2005; Novosád, 2015; Somech & Bogler, 1999), *attentive listening* (Newport, 2005) and *taking notes* during classes (Fryjaufová, 2006; Sternberg et al., 1993);
* **environment** – *getting to know the university library* and its services (N. Leonard & Insch, 2005; Somech & Bogler, 1999), *getting to know the information and communication technology that support study* (N. Leonard & Insch, 2005; Somech & Bogler, 1999), *communication with the administrative staff* – assistants, librarians, IT workers (Novosád, 2015; Somech & Bogler, 1999) and *forming relationships that offer social support as well as professional challenge and simulation* (Eby et al., 2003; Nabi, 1999; Rahat & Ilhan, 2016; Tomás-Miquel, Expósito-Langa, & Nicolau-Juliá, 2015; Tschannen-Moran & Nestor-Baker, 2004);
* **self-management** (primarily in the sense of self-development and time management) – *goal setting* (Bogaard, 2012; Grunschel et al., 2016) and *clear idea of one’s life goals* (Eby et al., 2003; Prevatt et al., 2011), *looking for feedback* (Tschannen-Moran & Nestor-Baker, 2004), *using a variety of organizational tools* – planners, calendars, task lists, files, folders (Prevatt et al., 2011), *stating the priorities for the activities* (Leonard a Insch 2005; Tschannen-Moran a Nestor-Baker 2004) and *engaging in relaxation* (Šustrová & Černý, n.d.).

Two models related to university student retention, the ability of the student to persist until graduation, are usually discussed: Student Integration Model and Student Attrition Model. **Student Integration Model** appears to suggest that academic integration, social integration, institutional commitment and (to some extent) goal commitment exert the highest effects on persistence (Cabrera, Nora, & Castaneda, 1993). Research on the **Student Attrition Model** emphasizes the roles of the intent to persist, attitudes, institutional fit and external factors (in the form of family approval of institutional choice, friends’ encouragement to continue enrolment, finance attitudes and perceptions about opportunity to transfer to other institutions) on withdrawal decisions (Cabrera et al., 1993). Especially the importance of social support is mentioned in literature quite often, because a support network can provide not only emotional support, but also financial support or instrumental support (Gray, Vitak, Easton, & Ellison, 2013).

# Goals of the Current Study

This paper focuses on strategies for effective study at university from students’ point of view. The basic question of the conducted study was: What would students recommend to their best friend beginning of his/her university study in the specific field in order to study effectively? The strategies for effective university study are examined on the basis of students’ recommendations for university freshmen, because 1) college students mostly feel insecure about the college environment during the first year in college (Dipasupil, Ham, & Min, 2016) and acquire information primarily from interpersonal sources (Chen & Yao, 2015), e.g., from friends that they have on campus (Julia & Veni, 2012), 2) whose recommendations are probably based on students’ personal experience and their ideas about university setting and 3) such advice might point out on such determinants of a university adaptation, academic performance or academic success (which are not examined enough in the current literature).

The aims of the study were 1) to find out students’ recommendations for first-year students (their best friend at the beginning of his/her university study), 2) to classify these recommendations according to their similarity into basic categories and 3) to analyse if the categories of recommendations are influenced by respondents’ gender, their faculties of studies or the degree of their study programme.

*Hypothesis 1*. *There is a statistically significant relationship between the categories of a given recommendation and the respondent’s gender.*

Some authors mention that gender can have an influence on success (Heslin, 2003; Seibert & Kraimer, 2001; Supangco, 2011) as well as on retention (Severiens & Dam, 2012), academic performance (Dayioǧlu & Türüt-Aşik, 2007) or coping strategies (Brougham, Zail, Mendoza, & Miller, 2009). As Dayioǧlu and Türüt-Aşik (2007) explain childhood training and experience, gender differences in attitudes, parental and teacher expectations and behaviours, differential course taking and biological differences between the sexes may all cause gender differences in achievement. For example, Pomerantz, Altermatt, and Saxon (2002) found out that girls outperform boys in school but that girls are also more vulnerable to internal distress than boys are. Similarly, according to the findings of Sheard (2009), female students significantly outperformed their male counterparts in each measured academic assessment criteria. Further, female students also reported a significantly higher mean score on hardiness commitment compared to male students. In addition, Smith (2004) concludes that males and females approach the role of student differently. While females are generally performing the role of hard-working responsible student, males seem to prefer sporting prowess and socializing to academic study. These facts might mean that strategies used for university study could differ in relation to gender of respondents.

*Hypothesis 2*. *There is a statistically significant relationship between the categories of a given recommendation and the faculty which the respondent studies.*

Experts (Rasdi et al., 2009; Seibert & Kraimer, 2001; Supangco, 2011) note that organizational factors like industry branch or organizational culture might influence career success. Likewise, Tomás-Miquel et al. (2015) state that while some skills are highly recommended in all disciplines (such as teamwork or interpersonal communication skills), others, like creativity and innovation skills, are more specific and connected to a specific field of study. It generates a hypothesis that types of recommendations might differ also in relation to respondents’ faculty of study.

*Hypothesis 3*. *There is a statistically significant relationship between the categories of given recommendation and respondent’s degree of study programme (Master’s or Bachelor’s).*

Sheard (2009) found out that mature-age students achieved higher final degree GPA compared to younger undergraduates. Similarly, Ofori (2000) states that student age significantly predicted performance. Further, student age could be related to student level of tacit knowledge. Tacit knowledge is based on a subconscious identification of the given situation as being suitable for the usage of a specific procedure or a specific behaviour pattern (Eraut, 2000; D. Leonard & Sensiper, 1998) and is often connected with the level of expertise (see e.g. D. Leonard & Sensiper, 1998; Swap, Leonard, Shields, & Abrams, 2001). Sternberg (1997), Wagner (1985) and Armstrong and Mahmud (2008) mention individual tacit knowledge influences one’s success. In the case of university students, tacit knowledge helps in fulfilling study duties, social interactions and participation in group activities (Insch et al., 2008; Matošková, Dobeš, Baňařová, Polčáková, & Bilíková, 2014; Sternberg et al., 1993). It is probably connected with the used strategies for effective university study. Therefore, participants’ recommendations could differ in relation to respondents’ degree of study programme (Bachelor´s or follow-up Master´s).

# Method

## Participants

The collection of data took place by means of a questionnaire survey at five faculties of one of the universities in the Czech Republic. The following faculties were included: Faculty of Applied Informatics (FAI), Faculty of Humanities (FH), Faculty of Management and Economics (FME), Faculty of Multimedia Communications (FMC) and Faculty of Technology (FT). All of these faculties are placed in one town. The university has another faculty, but it is located in another town and that is why it was omitted from the survey. All faculties that were included in the study offer Bachelor’s study programme as well as follow-up Master’s study programme.

In total, 958 students, of which 42 % were men, participated in the survey. The representation of the individual faculties among respondents was the following: 350 students from FME, 149 from FAI, 181 from FT, 141 from FH and 137 from FMC. Concerning students’ degree program, this question was answered by 588 (61.6 %) students of the first year of the Bachelor programs (it means mostly the first year of university study) and 303 (31.7 %) students of the first year of the follow-up Master programs (it means at least the fourth year of university study). Others respondents were either students of other study years who attended seminars with the first year students or they have not stated their year of study.

## Procedure

The questionnaire was distributed personally by the research team members in seminars for the first year students of Bachelor’s study programme and in seminars for the first year students of follow-up Master’s study programme. Since the aim was to gain answers from the majority of university students, the research team chose compulsory seminars depending on the field of study. The questionnaires were distributed in the first, eventually in the second, week of a summer semester. The distribution was allowed by the lecturers of the seminars. It was supposed that such a distribution would disrupt the course of teaching only minimally.

The respondents were asked to write at least five recommendations for effective study for their best friend at the beginning of his/her university study and in the respondent’s field of study. Then respondents filled out identification questions (their gender, their faculty and degree of their study programme – Bachelor’s or Master’s).

## Data Analysis

To evaluate the obtained data coding and the follow-up categorizing of codes was performed. The process was as follows: semantic units (sections of the transcribed texts) were identified as bearers of information. Assigning of codes (the key words) to the semantic units followed next. The given codes marked the core of the information (the topic) and were used as a categorization tool of the semantic units. To ensure data validity, the semantic units were identified and coding was performed independently by three team members. A list of codes was created which was later systematically categorized, i.e., codes were grouped according to their thematic similarity. Several team discussions about grouping of codes into categories were done. Finally, a team discussion was held to sort the codes into basic categories. The thematic similarities of the used codes and their groups were used. In cases when more categories were possible, the team looked at words which the participants used. Then the team discussed the mentioned context (e.g., school, background, person) and the used key words (e.g., to be, to have/own, to do, to be able to do, to know). Such a strategy was considered to be sufficient for the final decision about the category in which the code belongs.

Next, the text-mining analysis was applied to find out which words are most often used in advice for freshmen students. This part of analysis helped to identify the key recommendations connected with effective university study. Finally, the data were then evaluated using statistical methods. Absolute and relative frequencies were identified. Afterwards Pearson’s chi-square test was used to test the hypotheses.

# Results

Overall the respondents have used 2661 various words in their recommendations. The most frequently used words and their frequencies are presented in Table 1.

Table 1. The most frequently used words by the respondents and their frequencies.

|  |  |
| --- | --- |
| Used word | Frequency of the word usage in advice for freshmen students |
| Go | 363 |
| Lectures | 316 |
| Learn | 268 |
| Continuously | 183 |
| Be | 103 |
| Prepare | 98 |
| Information | 87 |
| Have | 82 |
| Do | 79 |
| Materials | 79 |

The respondents were supposed to give five recommendations. However, some respondents stated fewer and others more recommendations. The maximum number of recommendations by one respondent was nine, the minimum to the questionnaire was assessed was one recommendation.

Recommendations were coded. Table 2 presents codes which were used most often.

Table 2. The most frequently used codes and their frequencies.

|  |  |
| --- | --- |
| Code | Frequency of the code use |
| Learn | 325 |
| Attendance in lectures | 283 |
| Work continuously | 266 |
| Search for information | 263 |
| Prepare to school | 129 |
| Gain materials | 124 |
| Self-study | 104 |
| Start in time | 95 |
| Proactive | 89 |
| Study materials | 87 |
| Take conscientiously | 84 |
| Fulfil tasks and study duties | 80 |
| Network | 75 |
| Work conscientiously | 70 |
| Keep attendance requirements | 67 |
| Work from the first | 66 |
| Information from books | 61 |
| Write notes in lessons | 60 |
| Manage time | 60 |
| Information about teachers | 58 |
| Interest in the study field | 57 |
| Information from senior students | 56 |
| Good basic knowledge | 47 |
| Attendance in seminars | 47 |
| Set up a good class schedule | 44 |
| Keep calm | 43 |
| Participate in classes | 43 |
| Participate in extracurricular activities | 42 |

Five basic categories of recommendations were identified:

**Characteristics** – this category contains recommendations of students related to what the students should be and what characteristics, abilities, motives and attitudes are important in order to become successful at the university. For example, the following codes were assigned into this category: interest in the study field, intelligent, ambitious, careful, active, industrious, friendly, communicative, willing to learn, responsible, patient, good memory, quick to learn, the use of common sense, the use of intuition.

**Knowledge** – this category contains recommendations related to the knowledge a student should have in order to become successful at the university. The following codes were assigned here: specialized knowledge, language knowledge, knowledge of university processes, general knowledge.

**Skills** – this category contains recommendations related to the skills of students, e.g., time management, self-control, communication skills, information technology skills, self-motivation, presentation skills, reflection skills. This category could be divided into the following subcategories: organizational and self-regulatory skills, interpersonal skills, study skills and technical skills.

**Behaviour** – this category contains recommendations of students related to how a student should behave, what they should do and possibly what they should consider in relation to the goal. The following examples were assigned into this category: going to welcoming party for freshman students, attending lectures, filling in notes from lessons in case of absence, keeping deadlines, respect the given rules, using a diary, taking part in the excursions and competitions, observing the attendance policy, visiting the library, searching for information, learning about the surroundings, fulfilling one’s tasks and duties, paying attention in the classes, participating in discussions, not cheating, gaining instructions from exam tests from previous exam terms, preparing for the exams, avoiding procrastination, communicating with peers, communicating with teachers, sharing information with the peers, avoiding drinking coffee, attending conferences, going abroad, writing notes during lessons, using foreign expert literature, sleeping sufficiently, eating regularly and doing sports. It is possible to find similar subcategories among students’ recommendations like those mentioned in Literature review: 1) study organization, 2) tasks and duties, including extracurricular activities, 3) preparation for classes, exams and learning, 4) behaviour during classes, 5) environment, including behaviour to schoolmates and teachers, and 6) self-management, including self-regulation, school-life balance, care about health and self-development.

**Background** – this category contains mentions of the background a student should create in order to study effectively. These recommendations were related to a social network, property and belongings as well as to accommodation. The following examples were assigned here: living close to the university, having a laptop, having a Facebook profile, having contacts, having friends (clever ones, reliable ones, from higher study years, etc.) and having a supportive life partner.

## Examination of the Hypothesis on Variability of Categories of Recommendations by Gender

If 5% of the most often used codes depending on participants’ gender were compared, differences (one gender has the code among the most frequently used codes but the second does not) are in the following cases:

* Take conscientiously (1.3% women, **2% men**),
* Write notes in lessons (**1.5% women**, 0.7% men),
* Keep attendance requirements (1.2% women, **1.5% men**),
* Get information about teachers (0.8% women, **1.6% men**),
* Get information from books (**1.6% women**, 0.5% men),
* Work from the first (**1.4% women**, 1.1% men),
* Do self-study (**2.7% women**, 1% men).

Further, the frequencies of recommendations belonging to categories depending on informant’s gender were examined (Table 3).

Table 3. Frequencies of categories of recommendations by gender.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Categories of advice | Occurrences of recommendation in categories | | | |
| Men | | Women | |
| Absolute | Relative [%] | Absolute | Relative[%] |
| Skills | 66 | **4.60** | 80 | 3.91 |
| Behaviour | 1035 | 72.18 | 1597 | **77.98** |
| Background | 51 | **3.56** | 34 | 1.66 |
| Characteristics | 259 | **18.06** | 300 | 14.65 |
| Knowledge | 23 | 1.60 | 37 | **1.81** |
| Sum total | 1434 | 100.00 | 2048 | 100.00 |

The hypothesis of independency between the categories of the given recommendation and the respondent’s gender was not confirmed (Pearson’s *r*(4)= 23.48, *p* <.001). Women concentrated more on recommendations how to behave and what knowledge is important. Men mentioned more often what personality characteristics and skills are important for effective university study as well as recommendations connected with background.

## Examination of the Hypothesis on Variability of Categories of Recommendations by the Faculty of Study

If 5% of the most often used codes depending on faculty which participants studied were compared, differences (students from only some faculties have the code among the most frequently used codes) are in the following cases:

* Be proactive (1.0% FAI, **1.6% FME, 2.8% FH, 2.4% FMC**, 1% FT),
* Work continuously (**4.0% FAI, 6.7% FME, 5.7% FH**, 1.5% FMC, **5.5% FT**),
* Be conscientious (1.4% FAI, **1.6% FME**, 1.6% FH, 0.8% FMC, 1.1% FT),
* Set up a good class schedule (0.4% FAI, **1.8% FME**, 0.4% FH, 0.5% FMC, 0.0% FT),
* Look for practice (0.1% FAI, 0.7% FME, 0.6% FH, **2.2% FMC**, 0.0% FT),
* Attend lectures (**5.6% FAI, 6.2% FME, 5.0% FH**, 0.8% FMC, **8.3% FT**),
* Get information about teachers (**3.0% FAI**, 1.4% FME, 0.4% FH, 0.0% FMC, 0.5% FT),
* Get information from senior students (0.9% FAI, **1.7% FME**, 0.4% FH, 0.8% FMC, 0.9% FT),
* Get information from books (0.4% FAI, 0.6% FME, **4.8% FH**, 0.6% FMC, 0.2% FT),
* Be creative (0.0% FAI, 0.0% FME, 0.1% FH, **2.7% FMC**, 0.0% FT),
* Work from the first (1.6% FAI, 1.0% FME, 0.9% FH, 0.6% FMC, **2.5% FT**),
* Prepare to school (1.9% FAI, **3.5% FME**, 1.8% FH, 0.6% FMC, **3.3% FT**),
* Do self-study (0.5% FAI, 1.3% FME, **6.8% FH, 1.9% FMC**, 0.5% FT),
* Prepare study materials (**2.7% FAI, 1.9% FME**, 0.5% FH, 0.0% FMC, **2.7% FT**),
* Attend workshops (0.0% FAI, 0.2% FME, 0.0% FH, **1.9% FMC**, 0.0% FT),
* Learn (7**.0% FAI, 5.9% FME, 7.8% FH**, 1.7% FMC, **9.0% FT**),
* Make contacts (**2.7% FAI**, 1.1% FME, 0.6% FH, **2.7% FMC**, 0.7% FT),
* Start in time (1.5% FAI, **2.0% FME**, 2.1% FH, 0.8% FMC, **2.5% FT**),
* Participate in projects (0.2% FAI, 0.2% FME, 0.0% FH, **3.0% FMC**, 0.0% FT),
* Gain materials (**3.7% FAI, 2.9% FME**, 0.9% FH, 0.1% FMC, **3.6% FT**),
* Manage time (0.7% FAI, **1.7% FME**, 0.2% FH, **2.2% FMC**, 0.3% FT).

Further, the frequencies of recommendations belonging to categories depending on informant’s faculty were examined (Table 4).

Table 4. Frequencies of categories of recommendations by the faculty of study.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Categories of advice | Occurrences of recommendation in categories | | | | | | | | | |
| FAI | | FME | | FH | | FMC | | FT | |
| Absolute | Relative [%] | Absolute | Relative [%] | Absolute | Relative [%] | Absolute | Relative [%] | Absolute | Relative [%] |
| Skills | 15 | 2.77 | 49 | 4.08 | 14 | 2.60 | 47 | **8.02** | 21 | 3.30 |
| Behaviour | 409 | 75.46 | 973 | **81.08** | 430 | 79.93 | 360 | 61.43 | 476 | 74.84 |
| Background | 20 | **3.69** | 23 | 1.92 | 18 | 3.35 | 9 | 1.54 | 15 | 2.36 |
| Characteristics | 90 | 16.61 | 142 | 11.83 | 72 | 13.38 | 150 | **25.60** | 109 | 17.14 |
| Knowledge | 8 | 1.48 | 13 | 1.08 | 4 | 0.74 | 20 | **3.41** | 15 | 2.36 |
| Sum total | 542 | 100.00 | 1200 | 100.00 | 538 | 100.00 | 586 | 100.00 | 636 | 100.00 |

The hypothesis of independency between the categories of given recommendation and respondent’s faculty of study was not confirmed (Pearson’s *r*(16)= 124.88, *p* <.001). The most significant statistical chi-square test contributions to refusing the null hypothesis derive from the FMC, specifically the categories of Skills, Characteristics and Knowledge, and the FMC in category Behaviour. Students from the FMC emphasized the importance of creativity (frequency of the code ‘Be creative’: FMC – 15 %, FH – 1 %, FAI – 0 %, FME – 0 %, FT – 0 %).

## Examination of the Hypothesis on Variability of Categories of Recommendations by Study Programme Degree

Within the analysis, two study program degrees were distinguished: Bachelor’s programme (BP) and follow-up Master’s programme (MP). If 5 % of the most often used codes depending on participants’ study programme degree were compared, differences (BP students have the code among the most frequently used codes but MP students do not – or vice versa) are in the following cases:

* Take conscientiously (**1.5% BP**, 1.1% MP),
* Keep attendance requirements (**1.6% BP**, 0.8%MP),
* Look for practice (0.3% BP, **1.4% MP**),
* Work from the first (**1.6% BP**, 0.6% MP),
* Have work during studies (0.2% BP, **1.5% MP**),
* Prepare for school (**3.4% BP**, 0.9% MP),
* Make contacts (1.2% BP, **1.9% MP**)

Further, the frequencies of recommendations belonging to categories depending on informant’s study programme degree were examined (Table 5).

Table 5. Frequencies of categories of recommendations by the study programme degree.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Categories of advice | Occurrences of recommendation in categories | | | |
| Bachelor’s students | | Master’s students | |
| Absolute | Relative [%] | Absolute | Relative[%] |
| Skills | 93 | **4.25** | 53 | 4.08 |
| Behaviour | 1684 | **76.89** | 951 | 73.27 |
| Surroundings | 49 | 2.24 | 36 | **2.77** |
| Characteristics | 330 | 15.07 | 232 | **17.87** |
| Knowledge | 34 | 1.55 | 26 | **2.00** |
| Sum total | 2190 | 100.00 | 1298 | 100.00 |

In this case we cannot reject the hypothesis of independence of two qualitative variables (Pearson’s *r*(4)= 7.38, *p* = .117). Categories of recommendations do not depend on the degree of study programme.

# Discussion and Conclusion

Yazedjian et al. (2008, p. 142) mention that there is still not enough literature dealing with strategies students use in adapting to university – maybe because students vary in the strategies they use to be academically successful. Especially in the Czech Republic, the topics of university students’ retention and their academic success are still not enough developed and discussed. Therefore, the paper deals with strategies for effective study at university, strategies which are examined on the basis of students’ recommendations to prospective freshmen at a Czech university.

Generally, recommendations given by the participants correspond with the ones stated in the specialized literature. This seems positive as it may indicate that students realize the fact that to behave and think in a certain way is important for a successful completion of their studies. Further, our findings indicate that to study university effectively means earning good grades, feeling socially integrated, being able to navigate the university environment, gaining practical experience connected with future professional work position and maintenance of health. The importance of social integration is stated by Yazedjian et al. (2008), Student Integration Model by Tinto (1997), Student Attrition Model by Bean (1985), or Julia and Veni (2012) as well.

Text-mining analysis and code frequencies were used to set basic recommendations for effective study at university. Fundamental advice seems to be: to attend lectures, to have needed materials and information and to learn and prepare continuously. Such advice can be found also in the literature. For example, Fryjaufová (2006) or Newport (2005) recommend to attend lectures even if they are not obligatory. Regular learning is mentioned by Insch et al. (2008), Somech and Bogler (1999) or Yazedjian et al. (2008). Newport (2005) suggests searching for information on current affairs.

According to VanZile-Tamsen (2001) motivational goal orientation will influence the type of strategies that are used, the effectiveness of that strategy use, persistence at academic tasks and academic achievement. Similarly, our findings show motivation (especially interest in the study field, interest in gaining new information and interest in self-development) as determinants that can help in effective university study. Additionally, Grunschel et al. (2016) found out that the use of motivational regulation strategies had significant positive indirect effects on students’ academic performance and affective/cognitive well-being via academic procrastination. Furthermore, Komárková and Hiršová (2014) found out that most university students see the main reasons of their failures in inner causes like procrastination or difficult managing of study tasks. They add that the more conscientious the university student, the lower the probability of failure. Similarly, students in our study also emphasize the necessity of conscientious study, keeping deadlines and fulfilling their duties in time.

Some participants’ recommendations react to the development of information and communication technologies, as advice on obtaining a laptop, a cell phone or setting up a Facebook profile were mentioned. This finding corresponds with other surveys. Generally, information and communication technologies help university student to organise activities – students used them to inform themselves about terms and deadlines, to change study materials, to support mutually in an exam preparation (Rohlíková, Kohout, Rohlík, & Vrbík, 2015). Especially, Facebook (and other social network sites) is used to engage in “social information-seeking,” to share information related to extracurricular activities, homework, teachers, etc. – see e. g., Gray et al. (2013), DeAndrea, Ellison, LaRose, Steinfield, and Fiore (2012).

Quite a lot of students’ advice was connected with health, such as to sleep enough, to eat regularly, not to smoke, to relax and to restrict alcohol consumption. This could be connected with current greater publicity of healthy life style in media. However, it could be also related to coping strategies for stress tolerance. College freshmen can suffer from “emotional ups and downs,” difficulty falling asleep or feelings of anxiety (Welle & Graf, 2011) because they have to deal with a unique amount of stressors, including new lifestyle, new friends, new roommates, exposure to new cultures and alternative ways of thinking (Julia & Veni, 2012). Welle and Graf (2011) add that students who took better care of their body were significantly more likely to be in the high stress tolerance group.

**Examinations of Hypotheses**

Recommendations were divided into several categories according to the thematic similarities as follows: Characteristics, Knowledge, Skills, Behaviour and Background. Hypotheses on the variability of categories dependent on gender, the faculty of study and the study program degree were examined.

Smith (2004) states that males and females approach the role of student differently and females seem to be more hard-working, responsible students. In our study, the differences between genders have also emerged. Women mentioned strategies of desired behaviour more often than men, especially strategies like self-study and note taking.

Some previous research found that the field of study does not influence differences in academic success (Mirkov, 2010). Neither were there significant relationships between the learning styles of students and their fields of study (Hasanzadeh & Shahmohamadi, 2011; Sahragard, Khajavi, & Abbasian, 2016). However, Mirkov (2010) states that students of social sciences are more oriented towards extrinsic goals compared to students of humanities and sciences. Further, Tomás-Miquel et al. (2015) mention that while some skills are highly recommended in all disciplines, others are more specific. In compliance with it, differences among students from different faculties were found in our study. Especially, the outstanding ones were the students of the Faculty of Multimedia Communications who highlighted, among others, the necessity of creativity, looking for practice or attendance at workshops more than others. Generally, they seem to be more oriented on gaining practical experience and building social networks than others. The more responsible students might be FT students who highlighted such items like work from the first and continuously, attend lectures, prepare to school and learn, gain and study materials. Such recommendations might be a reflection of consciousness that the study at this faculty is difficult. Furthermore, the findings also indicate that a universal way to success probably does not exist – it will always be dependent on context, e.g., on the faculty of study. In this connection, the findings of Tomás-Miquel et al. (2015) might be important. According to them, in non-creative disciplines, activities aimed at enhancing student connectedness should be designed to encourage the development of student relationships, especially between course peers. However, in creative contexts, activities should help students develop a portfolio of academic relationships with both course peers and external sources of knowledge (such as students from other disciplines or companies and institutions).

The differences among the categories of recommendations and the study program degree (Bachelor’s and Master’s programmes) were not statistically significant. However, if recommendations are compared, they indicate that Bachelor’s students might be more studious. On the other hand, follow-up Master’s students seem to be more thinking about their near entrance to the labour market and are more focused on gaining practical experience which they will need.

**Practical Implications**

Students should have a realistic understanding of what their programme entails, what is expected from university students as well as what students can expect from their studies. Therefore, supplementary materials should be given to freshmen students. Parts explaining university processes, a healthy lifestyle and the use of information technologies can be added in them. In addition, university teachers should emphasise effort as the basis of students’ success in their academic activities.

Furthermore, adaptation programs for freshmen students could be offered too. It is also obvious that senior students have a lot of interesting knowledge connected with the university setting and therefore they should be involved in the process of freshmen adaptation. Universities could provide students with more opportunities to communicate with senior students and offer mentoring programmes, where senior students can be mentors.

Additionally, universities could also offer courses dealing with self-management and strategies to self-regulate motivation and for avoiding procrastination. It could be beneficial to teach freshmen students some practical ways to handle stress, to offer some stress reduction workshops.

The fact that students are used to Facebook could be utilized as well. It is possible to give some basic information about university and advice for freshmen students, information about offered social activities and development courses on Facebook.

**Limitations of the Study**

A limitation of this study is that it represents the perceptions of students at one university and was based on only one open research question. On the other hand, the research sample included more than 900 respondents. Additionally, they were from five faculties. That might broaden the spectrum of acquired replies. Another limitation of the study is that the fact that students are able to give recommendations does not mean that they apply the recommendations into practice themselves as for example Yazedjian et al. (2008) point out. Further, a limitation is that the variability of recommendations dependent on gender, the faculty of study and the study program degree were tested with the using of categories of recommendations. However, several team discussions about final grouping of codes into categories were effected, which decreased the probability of a mistake.

**Perspective on Future Research**

The findings provide several suggestions for future research. It is possible to look in detail on differences among men and women – f women are really more responsible during their university study. The difference of students of the Faculty of Multimedia Communications from others and the importance of creativity for student success can also be investigated. The impact of information and communication technologies (e.g. Facebook) on university study, as well as publicity of health life style in relation to university students, might be also broadly studied. Severiens and Dam (2012) suggest including teachers’ perspectives in a study on why students leave college. Similarly, it might be interesting to find out teachers’ ideas about strategies leading to student academic success. Finally, future research could replicate the findings at different universities and compare results too.

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