

What is the role of higher educational institutions in managing their students' competencies?

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Abstract: Although the mission of higher educational institutes is - besides producing new knowledge via original and applied researches - to educate (young) people and equip them with knowledge, information and skills in order to increase their employment opportunities, the number and relative ratio of those unemployed despite having higher than secondary education is constantly growing in Hungary. Only 42% of employers think that employees are ready for employment upon graduation and only half of the young graduates believe that their post-secondary studies have improved their employment opportunities [8]. What is more, traditional HEI are usually not designed to react to the ever-changing market where skills depreciate quickly since they cannot constantly adjust their curricula at the pace the changing industry would require them to. Present paper endeavours to look into the means and tools of how one of Hungary's biggest universities tries to deliver knowledge to its students and research, identify and analyse the deficiencies of the current system from the students' point of view. Preliminary results of an ongoing research is presented, where students of Óbuda University's Keleti Faculty of Business and Management had to evaluate various methodologies' - lectures, seminars, group work, and the internship along with participation on the Scientific Students' Association's Conference – on the basis of their efficiency in delivering knowledge and developing competencies.

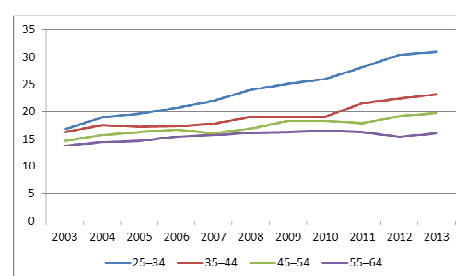
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1. Introduction

In order to be able to create a knowledge intensive, innovation based economy various things are needed, such as creation/development and deployment/commercialisation of new knowledge. In the past, the higher educational institutes (HEI) have been the main driving forces of such processes via initiating and performing original and applied researches and transmitting their findings to their students, and through spin-offs to the economy and its agents. However, besides the creation and preservation of systematic knowledge through research activities, HEI are supposed to be institutions fostering their students' analytic, rational, systematic, critical, sceptical and innovative thinking, hence tools of developing competencies [1]

Since most experts agree that knowledge is to determine the future wealth and wellbeing of societies, education and especially higher than secondary education is very much promoted, encouraged and endorsed all over the world [4]. According to Teichler [2] only a large number of individuals

with in-depth knowledge and profound understanding of the local and global economic and social systems (or other fields and sciences) would be able to make a substantial contribution. Along these ideas, the number of people with higher than secondary education (from now on labelled as higher education) is constantly increasing in developed countries. This phenomenon is prevalent in most Central-Eastern European countries, among others in Hungary, as well.

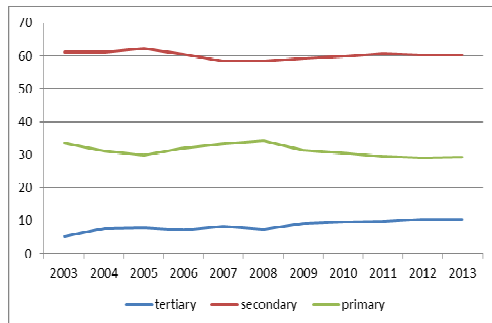


Source: [6]

Graph 1. The percentage of people with higher education within various age groups (2003-2013)

In the past 10 years, as displayed by graph 1, the ratio of those with higher educational degree in Hungary has increased in every age group. Not surprisingly the growth rate has been the most extreme within the age group 25-34 (with a growth of 84% in 10 years).

Unfortunately the increase of the educational niveau of the population has not been followed by a drastic drop in unemployment rate [12]. What is more, according to the Hungarian Central Statistical Office's data [6] the relative unemployment of those with higher education has worsened over the past decade. As displayed on graph 2, those with primary education are in the worst situation when it comes to the ration of unemployed, however, the tendency is somewhat frightening, since those with higher education have it harder year by year to find (suitable) jobs. Their ratio within the unemployed population has almost doubled since 2003 (growth rate being 0.96).



Source: [6]

Graph 2. Percentage of people with various educational background within the group of unemployed (2003-2013)

The phenomenon is not unique Hungarian. Although - owing to the aggressive campaigns aimed at increasing the ratio of those with higher education within the total population – the average educational niveau has drastically increased in the past decades, neither the number of

unemployed, nor that of unoccupied vacancies has decreased nowhere radically [5]. According to OECD reports [3] the most endangered segment of the population is still those with (less than) primary education. However, due to a proliferation in structural unemployment (the composition of labour market demand being dissimilar from the structure of those unemployed) higher education is not the golden way to leadership positions, or even to guaranteed employment any more.

2. Theoretical Background

Labour market is assumed to demand skills and competencies, rather than qualifications [4]. What is more, according to [16] research finding there is only weak correlation (Pearson: 0.2) between the level of formal education and the niveau of skills and competences demanded by employers. Companies are searching for people with the ability to be productive immediately after being employed, not candidates who need extra training to perform well in a job [7].

According to a McKinsey study [8] while 72% of HEI believe that recent graduates are ready for work, only 42% of employers agree with this statement.

There is a serious inconsistency between the importance of various skills from the employers' and the HEIs' point of view and the perceived level of the fresh graduates' skills and competencies also differ fundamentally ([15], [14]). Fortunately, the students perceive the labour market situation right. Only 45% percent of them believe to possess the necessary skills upon graduation. As a result, only half of young adults (55% of college or university students, 44% of those with vocational education) believe that their post-secondary studies have improved their employment opportunities.

Table 1. Employer and education provider perspectives on skill importance and competence - % of respondents rating the given skill very high

C=level of competence I=level of importance	Employer rating		Provider rating		Difference in	
	C	I	C	I	C	I
Work Ethic	65	80	70	83	5	3
Teamwork	65	79	69	81	4	2
Local Language	65	73	73	77	8	4
Oral Communications	55	73	65	81	10	8
Hands-on Training in Discipline	54	69	69	79	15	10
Problem Solving	46	66	63	79	17	13
Written Communications	49	64	63	81	14	17
Creativity	50	63	62	72	12	9
Computer Literacy	53	63	69	81	16	18
Theoretical Training in Discipline	50	63	69	73	19	10
Basic Math	49	60	59	71	10	11
Leadership	45	58	57	67	12	9
English Proficiency	40	53	55	73	15	20

Source: [8]

The situation of HEIs is indeed difficult. The economy is changing at an escalating speed, new technologies and with them new positions requiring novel skills and competencies occur every year. However, traditional HEI were not designed to react to the ever-changing market where skills depreciate quickly and cannot constantly adjust their curricula at the pace the changing industry would require them to. Hence, the task of HEIs should be to prepare their graduates for the competitive and dynamic work environment of the XXI. Century and develop skills and competencies increasing the employability of their students besides (or maybe instead of) providing information and theoretical knowledge [13].

At this point each HEI has to address two key questions. What is demanded by the labour market, and in what way, by what means can HEI close, or at least narrow the gap between what their students have and what the labour market will demand from them? The first question has already been addressed by a previous research [9] investigating the perceived demand of employers and the discrepancy between the prerequisites and the current skill level the young labour market entrants in the field of business and economy have to offer.

According to the findings Hungarian students of business and economics are not well equipped when it comes to skills and competences. Only in four researched area could they fully meet the employers' expectations (Extensive general knowledge, Profession-specific theoretical knowledge, Learning capability, Foreign language proficiency). In case of other 12 competences (Accuracy, attention to details, Reflectivity, evaluating one's ability to work, Independency, Adaptability, Depth of involvement, Analytical skills, Multidisciplinarity, Profession specific methodological knowledge, Diversity management, Loyalty, Integrity, Written communication, Critical thinking and Concentration) the discrepancy was minimal (within a 10% margin). Nonetheless, in case of almost half of the demanded skills (15 out of the investigated 32) they were far from the demanded level. For some skill (Negotiations and Planning, organising and coordinating) the discrepancy was even more than 25%. Shockingly, only 4 out of the researched 203 would have been able to fully meet the expectations of the potential employers.

In the light of these results a further investigation seemed necessary that was to focus on the techniques (means of dissemination of knowledge and development of skills) used at the university and their effectivity.

3. Research on the Influence of Various Teaching Methods

In order to explore the perceived efficiency and effectivity of various teaching methods applied at HEI, an online survey has been initiated that has been circulated (via Facebook groups) among students of Óbuda University's Keleti Faculty of Business and Management. The survey researched the

students' opinion on university lectures, seminars, group works, the internship – which is compulsorily inbuilt in the Hungarian HEIs' educational programs, - and the Scientific Students' Association's Conference (TDK). Respondent were asked to evaluate the above listed methods' influence on 30 different skills and competencies on a five-point Likert scale. The purpose of the lengthy questionnaire was to generate a database that is comparable with the previous research's database in order to be able to identify the methods that generate the most influence on the competences that the students are lacking most in the employers' point of view.

3.1. Introduction of the Educational Methods Investigated in the Sample

While a lecture is a traditional one-way communication, seminars provide some field for experimenting asking for feedback and clarification and sharing new ideas. Group works are usually done in self-organised student groups and connected to various assignments, therefore most of the time their dynamic and effectivity is not monitored by the teachers [12]. What is more, internships, although being official parts of the curriculum are not related to the university and there are no mentors involved in the process of it either.

The last mean of transmitting knowledge that has been investigated is a Hungarian phenomenon, the Scientific Students' Association's Conference. The Scientific Students' Association's Conference (in Hungarian abbreviated as TDK) is an annual event for some selected students of Hungarian HEIs, and a biannual national event for those who are nominated by the HEI to participate. This conference fosters the development of scientific skills, such as analytic skills and problem solving on one hand; on the other hand, it provides a possibility to practice presentation skills and reasoning with specialists of the given field within a relatively safe environment. More important is, from current the research's point of view that the basis of the activities for the scientific students' association's conference is the student - professor relationship which, by surpassing the obligatory curriculum, offers possibilities for students already pursuing independent research work during their undergraduate studies to receive first hand education from their professors. They can become acquainted with research methods and means in detail and acquire additional knowledge beyond their obligatory curriculum "on-the-job" while working with and observing the work of their mentors. Hence, this activity is one of the rare possibilities for a student to receive new knowledge and develop skills through socialisation.

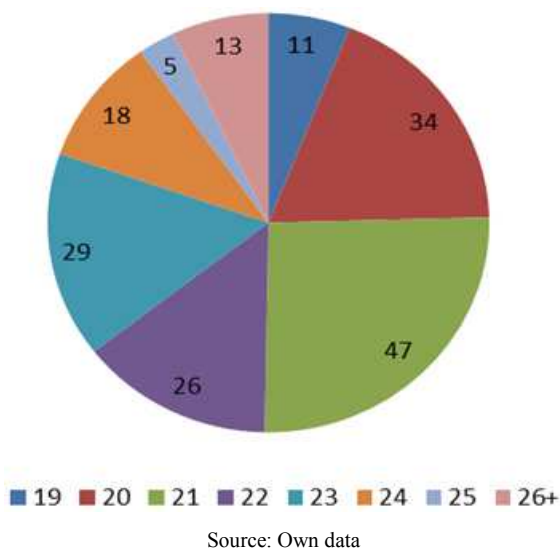
3.2. Introduction of the Sample

234 students of the Óbuda University's Keleti Faculty of Business and Management have filled out the online questionnaire; however, possibly owing to its lengthy nature only 183 could be evaluated.

The sample included 93 male and 90 female students' answer hence providing a good opportunity for comparing

their opinions on the teaching tools under investigation.

The average age of the respondents was 22.076 (Std. Dev.: 2.790) and their distribution by age is displayed on graph 3.



Graph 3. The respondent's distribution by age

135 (75%) of the respondents did not have any first-hand work experience. Meaning that only some of them really evaluated this tool on the basis of what his/her experiences were, and the majority could only provide an imaginary picture on the compulsory internship and its supposed effects.

Fortunately, the survey was filled out by 28 students, who already have participated on at least one Scientific Students' Association's Conference, however, 9 of them have already taken part on 2, 3 of them on 3, 2 of them on 4, and there was even one student, who has already taken part on 5 Scientific Students' Association's Conferences. Naturally, since it is not compulsory, the majority of the sample (N=154) has not (yet) participated on any Scientific Students' Association's Conference.

3.3. Results and Discussion

The data of the survey have been analysed with the help of the SPSS 20 program. Besides descriptive statistics, bivariate correlations were run in order to explore the connection of the variables, and independent sample's T tests were initiated in order to verify relations explored with the help of the correlation analysis. Since the paper presents the preliminary results of a still ongoing research, all relationships described below should be regarded as indicative and not as evidential statements.

In order to compare the effectivity of various teaching tools in developing competencies the means of respondents' opinion has been calculated.

3.3.1. Students' Evaluation of the Effectivity of University Lectures

According to the students' point of views university lectures are the least effective tools for developing skills and competencies. The average impact has been rated 2.63 on a

five-point Likert scale. Lectures are perceived to be best for developing the following skills. (Numbers in parenthesis represent the average points given to the competencies by students.)

- 1 Information Management (3.38)
- 2 Continuous Learning (3.24)
- 3 Global Awareness (3.20)
- 4 Frustration Tolerance (2.95)
- 5 Ethical Actions (2.91)

While the first three skills are directly related to the lectures as tools and their contents, the fourth one talks rather about the students' relation to the lengthy university lectures (90 minutes in one run) and the one-way communication they embody. The lectures' perceived effect on their competencies for ethical actions is rather questionable, so it needs further investigation to understand the underlying motivations and logic.

3.3.2. Students' Evaluation of the Effectivity of University Seminars

The students had far better opinion about the efficiency of seminars in developing their competencies. Their average evaluation was 3.20. They perceived seminars to have the most influence on the development of the following skills:

- 1 Practical Adaptation of Theoretical Knowledge (3.74),
- 2 Continuous Learning (3.58),
- 3 Information Management (3.53),
- 4 Presentation Skills (3.52),
- 5 Oral Communication (3.48).

As it can be seen from the rating in parenthesis, the perceived effect of seminars is significantly higher than that of lectures. Competencies that are supposed to be developed through seminars are in line with the mainstream opinion of the purpose of this tool.

3.3.3. Students' Evaluation of the Effectivity of Group Works Initiated Throughout their University Studies

According to survey data group works were the highest rated tools of competency development with an average efficiency of 3.48. The uppermost rated competencies were:

- 1 Ability to Work in Groups (4.33),
- 2 Interoperability (4.23),
- 3 Oral Communication (4.06),
- 4 Persuading Others (3.98),
- 5 Decision-making (3.97).

The 4.33 average communicates that almost 60% of the students rated group works as very efficient, another 25% as efficient and only 10% as a tool of average efficiency in developing the ability to work in groups. Of course the high rating also means that assignments, like tasks they have to do together, or problems they have to solve as a group serve as ways of obtaining first hand experiences, as means of acquiring tacit knowledge. However, the indeed high rating tells something more about the matter. Group work overpowered the effect of every other means of transferring knowledge in more than half of the competencies investigated.

3.3.4. Students' Evaluation of the Effectivity of Internship that is Compulsorily Inbuilt into the University Curriculum

It would be easy to assume that students are keen on experiential learning, and rather learn by doing than by hearing about it. However, the respondents' opinion on the efficiency of internship as a mean of transferring knowledge would not verify this hypothesis. The overall evaluation with its 2.28 average was far the lowest of all. (This data incorporates the opinion of those who actually have not been involved in the internship as a way of teaching yet, as well as the judgements of those who already have been there.) However, only taking into account the attitudes of those with first-hand experience is the internship as a tool for transferring knowledge not really effective (2.72). Almost no students believed that owing to their internship (at least 12 weeks of work experience) they could develop their competencies drastically. The highest ranking competencies were:

- 1 Presentation Skills (3.31),
- 2 (Report) Writing (3.24),
- 3 Self-sufficiency (3.15),
- 4 Information Management (3.14),
- 5 Creative Thinking (3.12).

3.3.5. Students' Evaluation of the Effectivity of University Lectures

The Scientific Students' Association's Conference, owing to its voluntary nature is usually not regarded as a way of teaching, or a mean of transferring knowledge, although it

incorporates substantial efforts on both the students' and their mentors' side, helps better understand professional topics that have been introduced throughout the curricula and creates a unique opportunity for two way communication. It is not applied regularly, for a wider audience, especially not in mass education. The ratio of students who have participated on the Scientific Students' Association's Conference was only 15% of the total population in the sample and would be even lower (around 7%) if I would be able to gather representative data. However in this case, the same as with the evaluation of internship, the average students' opinion (2.59) significantly differed from that of those who have already participated on at least one of the Scientific Students' Association's Conferences (3.21). Skills that they thought have been developed the most were:

- 1 Problem-solving (3.76),
- 2 Ability to Work in Groups (3.75),
- 3 Interoperability (3.68),
- 4 Self-sufficiency (3.64),
- 5 Conflict Resolution (3.60).

3.3.6. Age Based Differences in Students' Evaluation

As already presented before, the sample included students mainly (around 80%) from the 19-23 age-group. Since the distribution of the sample made it possible to look into the relation of the perceived efficiency of various teaching tools and the respondents age a correlation analysis has been run. Surprisingly no strong correlation has been found. The only three differences are displayed in table 2.

Table 2. Significant differences in students' evaluation on the basis of their age

** : Sig. (2-tailed) < 0.01 * : Sig. (2-tailed) < 0.05	Pearson Correlation	Significance (2-tailed)
Continuous Learning through Seminars	-0.163*	0.028
Conflict Resolution through Group Work	-0.199**	0.007
Presentation Skills through Group Work	-0.179*	0.016

There is a slight difference between younger and older students' perception of the effectiveness of seminars and group works. Younger students appreciate the role of seminars in developing continuous learning skills, and the part group works are playing in fostering conflict resolution and presentation skills more than the older students in the sample. It was not possible to find a definite cut point with the help of which the generated groups could produce significantly different means with the independent samples' t-test.

3.3.7. Gender Based Differences in Students' Evaluation

As displayed in table 3, there were numerous, though weak correlations between the gender of respondents and the various tools' perceived effectiveness. Since most of them are

not only weak but of medium significance, they will not be addressed one by one in this paper. However, a striking relationship might be interesting to note, namely that females attributed significantly more effectiveness to lectures, seminars and group works than male respondents did. Hence the question arises, whether the perceived effectiveness might be different from the objectively measurable, or that female student find it generally speaking easier to receive and understand knowledge, in this very case certain competencies in a higher educational setting. Group works seem to be especially efficient for female students, which might have some connection with their higher level of openness and general social skills that make it easier to work in groups (Schmitt et al, 2008).

Table 3. Significant differences in students' evaluation on the basis of their gender

** : Sig. (2-tailed) < 0.01 * : Sig. (2-tailed) < 0.05	Pearson Correlation	Significance (2-tailed)
(Report) Writing Through Lectures	0.186*	0.013
Ethical Actions through Lectures	0.171*	0.021
Responsibility through Lectures	0.149*	0.044
Foreign Language Proficiency through Lectures	0.157*	0.034
Cooperation through Seminars	0.177*	0.017

** : Sig. (2-tailed) < 0.01 * : Sig. (2-tailed) < 0.05	Pearson Correlation	Significance (2-tailed)
Adaptation of Theoretical Knowledge into Practice through Seminars	0.178*	0.016
Leadership through Seminars	0.163*	0.029
Working with Groups through Group Works	0.168*	0.026
Decision-making through Group Works	0.158*	0.035
Cooperation through Group Works	0.229**	0.002
Adaptation of Theoretical Knowledge into Practice through Group Works	0.174*	0.019
Ethical Actions through Group Works	0.170*	0.022
Responsibility through Group Works	0.286**	0.000
Information Management through Group Works	0.173*	0.020
Risk Taking through Group Works	0.164*	0.028
Creative Thinking through Group Works	0.233**	0.002
Multidisciplinary Thinking through Group Works	0.156*	0.037
Self-sufficiency through Group Works	0.163*	0.029
Problem Solving through Group Works	0.196**	0.008
Oral Communication through Group Works	0.211**	0.004
Susceptibility for New Skills through Group Works	0.163*	0.029
Change Management through Group Works	0.147*	0.048
Leadership through Group Works	0.185*	0.013

Perhaps because of the relatively small sample size, or the not so significant correlations, none of the relations demonstrated in table 3 were verified with independent samples' t-test. Hence the results can only suggest general tendencies and should by no means be regarded as evidential statements.

3.3.8. Significant Differences on the Basis of Completed Internship or Past Experience with the Scientific Students' Association's Conference

Table 4. Significant differences with t-test on the basis of experiences or the lack of them with internships

	t-test for Equality of Means Equal variances not assumed			
	t	df	Significance	Mean Difference
Leadership through Internship	2.340	63.320	0.022	0.640
Change Management through TDK	10.481	113.013	0.000	2.187
Susceptibility for New Skills through TDK	8.736	98.777	0.000	2.004

Interestingly, only one variable dedicated to internship's effects and two other unrelated, connected to the influence of Scientific Students' Association's Conference (TDK) on the measured skills has come up significant. Each result emphasises that those with an internship behind them value certain effects of the internship or the Scientific Students' Association's Conference than those, who have never worked before.

Contrarily to those with or without previous work experience the participation on the Scientific Students' Association's Conference really did create significant differences in the perception of various tools' effectivity. On the one hand they think that university lectures are good (a lot better than the average population thinks) in developing persuasion skills (t: 2.082; df: 36.378, Sig. (2-tailed): 0.044; Mean Difference: 0.691). On the other hand they think that seminars are not so effective (as the average students perceive them to be) in fostering problem solving competency development (t: -2.270; df: 32.258; Sig. (2-tailed): 0.030 Mean Difference: -0.650).

Interestingly not only those with work experience did have a better opinion on the effectivity of the Scientific Students' Association's Conference, but the participants of the Scientific

As already discussed above, only a small portion of the respondents have already completed their compulsory internship. Although those, who had their own experience with how internships work rated the experience and its effectiveness in developing skill a slightly bit higher than those who did not take part in an internship, very few differences were confirmed by the independent samples' t-test. The significant differences are displayed in table 4.

Students' Association's Conference also thought better of the worth of practical internships. Table 5 enumerates the competencies that – according to the independent samples' t-test - had significant difference in means.

Table 5. Significant differences with t-test on the basis of participation on the Scientific Students' Association's Conference

Competence development through internship	Mean Difference
Working in a Multicultural Environment	0.952
Persuading Others	1.487
Susceptibility to New Skills	1.760
Practical Adaptation of Theoretical Knowledge	1.791
Creative Thinking	1.961
Decision-making	1.969
Responsibility	2.036
Information Management	2.135
Independence	2.193
(Report) Writing	2.257
Problem Solving	2.258
Presentation Skills	2.465

As it can be seen from table 5, in each of the competencies listed the difference in means was positive, and relatively high, since the points have been measured on a five point Likert-scale. Positive differences mean that those who have already participated on a Scientific Students' Association's

Conference deem the effectivity of internships to be much higher.

Last but not least, participation on a Scientific Students' Association's Conference influenced the sense of worth of the conference itself. Table 6 displays the competencies that – according to the independent samples' t-test – had significant difference in means owing to participation on a Scientific Students' Association's Conference.

Table 6. Significant differences with t-test on the basis of participation on the Scientific Students' Association's Conference

Competence development through internship	Mean Difference
Willingness to Take Responsibility	0.780
Interoperability	0.924
Practical Adaptation of Theoretical Knowledge	0.928
Ability to Work in Groups	1.044
Conflict Resolution	1.096

The differences in means are not as big as in case of the perceived effectivity of internships, but are still significant.

4. Summary and Conclusions

Present paper aimed to investigate the means and tools of how HEIs try to deliver knowledge to their students and research, identify and analyse the deficiencies of the current system from the students' point of view. Preliminary results of an ongoing research have been presented about 283 students' opinion on various methodologies' – lectures, seminars, group work, and the internship along with participation on the Scientific Students' Association's Conference – used at Hungarian HEI. The tools had to be rated on the basis of their efficiency in delivering knowledge and developing competencies.

On the basis of the data we can conclude that the group works are the most appreciated tools for knowledge dissemination and competency development, while university lectures are not really recognised as means of fostering skill development. The perception of internships' and the Scientific Students' Association's Conference has really split the group of respondents on the basis of their opinion. While those with first-hand experience in any of them (work or research) valued the effects of their chosen method higher they also rated the other tool's contribution more positively.

As a conclusion we might say that the still overemphasised and by mass education very much supported lectures are not the optimal tools for developing competencies. Although other means require more (in some cases far more) time and energy from university personnel, especially teachers, with the increased application of group works and scientific research activities the competency gap, which is prevalent on the labour market, might be closed or at least narrowed down.

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