

Learning styles

A primary data-based research using 127 student responses (of first semester history students) to questionnaires about their preferred senses for learning (visual, auditory or kinaesthetic) and student interviews

Peter Bainbridge*

ABSTRACT

This research is aimed at discovering how history students at CamEd, who are in their first semester, prefer to learn. This is a study of the three main senses (visual, auditory and kinaesthetic) used by learners and aims to find out which they rank as most important and therefore what classroom tasks would involve them most in the learning of history. The results are intended to inform the teacher as to how to enhance the learning and teaching environment inside and outside the history class. The interviews with students helped in producing ideas and checking the outcome of the questionnaire data.

* Peter Bainbridge M.A., M.Sc., L.T.C.L. (London)
CamEd Business School
Email: peter@cam-ed.com

METHODOLOGY OF RESEARCH

This research has been conducted by asking 127 students to each fill out a questionnaire (appendix 1). The students were chosen evenly and randomly (from attendance) from history classes E, F, G and H on 11th, 12th and 13th of April (the mid point of their first semester at CamEd in 2017). It was made clear that this exercise was not a quiz or any type of assessment – but it was for purely research reasons and no names were to be written on questionnaires. Students were pre-taught the necessary vocabulary very thoroughly (appendix 3) and advice was given not to dwell on questions – just to go with their first impressions. They were then spaced out in the room to ensure that their answers were unique to each student. The sample size (127 students) was considered large enough to be statistically significant and representative of the whole cohort of Semester One history classes of 2017. The students were given no warning or prior explanation of the survey but following completion were afterwards told the purposes of the research.

There were many questionnaires to choose from (appendix 1). The reason that Victoria Chislett's survey fitted the purpose was that the language grading was appropriate and didn't involve too much pre-teaching of vocabulary. It was necessary to pre-teach and concept check 17 words (appendix 3). Many might not have been new to students but it was still important they learned them all in the correct context. There were 30 questions devised by Victoria Chislett (acknowledged in the references) to assess students preferred learning styles by asking them to choose the response which most suits them. The results were that students rated kinaesthetic learning most highly (score of 1364), auditory learning second (score of 1287) and visual learning (score of 1181).

To illustrate what is meant by "correct context" above an example would be the word "dish". In the context of the survey it means a type of food. Students were asked what "dishes" they like (answers included fish amok, chicken stir fried rice, curries, a Cambodian vegetable stew, hamburgers). This is an example of how each key word in the in the questionnaire was elicited to ensure the correct semantic field (area of meaning) from the students to confirm the exact usage by getting students to come up with their own examples.

In addition 2 students from each of 4 classes were interviewed (appendix 4)

1. INTRODUCTION

The VAK method is not the only way of assessing learning preferences. Howard Gardner from the Harvard graduate school broke new ground in 1973 with his “multiple intelligences” theory which, up-dated in 2005, states that there are 9 different types of intelligence - each of which exists in a different place in the human brain

The multiple intelligences theory represents a huge step forward from the first “intelligence” test devised before the first world war to establish a person’s mental age and suitability for promotion (containing mostly mathematical/logical and linguistic questions). It might suit linear subjects such as maths or languages but for simplicity and thinking about the needs of second language users in the context of learning history teaching and learning the VAK approach has been used in this research. In CamEd’s accountancy courses it is likely that students self select themselves into those subjects because of strong mathematical/logical capabilities. There is also a strong parental influence in students’ subject references (leading some students studying subjects they are not suited to but are enrolled because of familial pressure. Howard Gardner is at pains to point out that we all have all of the 9 intelligences to varying degrees (assuming no cerebral or neurological damage from birth or through life). He doesn’t argue the case for nature or nurture – he recognises that we may not know why we have these intelligences but is clear that we do have them. This could be the basis for further study.

In teaching history one of the main aims is to get students to understand the present relevance of decisions made in the past (eg the current borders of a country or cultural changes are interwoven with local traditions). Finding memorable ways of achieving this is therefore important.

2. WHAT IS THE VAK APPROACH ?

It is a classification of the key human senses used in learning. All students learn by seeing (eg powerpoint slides or whiteboard writing), hearing (eg other students in groups or the teacher or auditory accompaniment to a video being shown) and by doing things (eg in groups). Specifically V.Chislett and A. Chapman describe it as :

- “Someone with a Visual learning style has a preference for seen or observed things, including pictures, diagrams, demonstrations, displays, handouts, films, flip-charts, etc. These people will use phrases such as ‘show me’, ‘let’s have a look at that’ and will be best able to perform a new task after reading the instructions or watching someone else do it first. These are the people who will work from lists and written directions and instructions.
- Someone with an Auditory learning style has a preference for the transfer of information through listening: to the spoken word, of self or others, of sounds and noises. These people will use phrases such as ‘tell me’, ‘let’s talk it over’ and will be best able to perform a new task after listening to instructions from an expert. These are the people who are happy being given spoken instructions over the telephone, and can remember all the words to songs that they hear!

- V Chislett and A Chapman point out that “someone with a Kinaesthetic learning style has a preference for physical experience - touching, feeling, holding, doing, practical hands-on experiences. These people will use phrases such as ‘let me try’, ‘how do you feel?’ and will be best able to perform a new task by going ahead and trying it out, learning as they go. These are the people who like to experiment, hands-on, and never look at the instructions first !” (p. 256)

Of course we have five senses and the other two are : olfactory and gustatory. These exist but have limited applications in the history classroom. A rare exception to this was bringing in plastic tubs of cinnamon, nutmeg and other spices to engage students’ olfactory senses and make them aware of how new, significant and valuable spices were in the Dutch and British spice trades. They added flavour, preservative qualities (specifically with cloves) and widened the range of dishes and sauces that could be made. Using the olfactory sense in class is memorable because the opportunities to experience this are very few in number for learning purposes. If you were teaching a culinary course it would be very different. For history we are mainly concerned with visual, auditory and kinaesthetic senses.

3. WHAT ARE THE IMPLICATIONS OF CAMED STUDENTS PUTTING KINAESTHETIC FIRST, AUDITORY SECOND AND VISUAL THIRD ?

The first thing to realise is we are sampling an age group of around 18 years of age and there is no reason to think that they are any different to their peers at the stage of tertiary education. However, learning subjects through a second language could bias the replies towards kinaesthetic or visual learning preferences in their English skills are poor. We all start life by touching, feeling and sensing things. Most pre-school kids like tumbling around with each other in safe playground facilities. Once we go to school we start to engage more into visual learning (eg colourful picture books) as well auditory learning (eg singing songs and teacher instruction). Whilst nurture may take us along the visual and auditory paths the “child within us” likes to play, feel involved and actively take part. Sport activities depend on that spirit thriving in us.

If any teacher used VAK questionnaires with their classes they’d certainly come up with the same conclusion : variety. The educational implication, therefore, is that good teaching rings the changes – from visual to auditory to kinaesthetic and back to visual ... round in a cycle. What underlies this is that in our lesson planning we must engage all three types of learning. When this is consistently done students will come to expect it and look forward to the type of learning they most enjoy. Of course all the students have given high marks to the other sensory types of learning – so they are clearly capable of reading, listening, watching as well as doing. Nurturing a love of reading is a strong objective for history and English courses – and most of all to experiment with writing (the productive skill most used in assessment).

“Tell me and I forget, show me and I may remember, involve me and I learn”(Benjamin Franklin). It is a way of emphasizing learning by involvement. Only when you experience something do you really learn it (like benefitting from the leaps in information technology which have taken place in i-phones, tablets etc).

4. PRACTICAL IMPLICATIONS OF THE RESEARCH

Introducing different types of kinaesthetic classroom exercises

A necessary pre-condition to everything below is that the teacher makes the methodology explicit to the class. The students need to know why the teacher is conducting an activity in a certain way – and the more open the teacher is the more feedback will arise and the greater the possibility will avail itself to allow the learners take control of how they want to learn. Some possible activities would include :

1. Movement

re-ordering the students into new groups involves getting students to change seats away from their friends (whom they will naturally gravitate to as they come into the classroom). This, in itself, will need explaining. One way is to say that “in the workplace you do not get to choose who you work with – so this is a little practice in a friendly environment to develop important social skills”.

2. Surveys

As a revision activity set up from a previous lesson, students write down questions (prepared as homework and based on the last lesson). They then interview as many students as they need to get answers for their questions. The teacher can do a quick review of the main topics in their survey letting the students answer where possible.

3. Role plays

In history, an example would be getting groups of students started in a dialogue in which they get the details of how Sir Stamford Raffles got the idea of colonising the island of Singapore, went ahead with a treaty which he wrote without any authorization, and then later (after the deed was done) had to justify his actions to his bosses. A staged role play after some written work (to give the students the time to think and order their thoughts) can bring out many issues of history still resonate today eg the risk taking, the fast changing environment of political realities, the courage to take advantage of events (eg the invasion of Holland in Europe by Napoleon changed everything in the Dutch East Indies – but there needs to be an *agent* of change to forge new possibilities) Such a role play needs to be carefully introduced by the teacher with the facts of the time. In the conclusion the students might come up with all the possibilities but the teacher needs to allocate roles, mingle among the students to get the ideas flowing and get a debate going at the end which is mainly student led (even if the teacher has to supply unmentioned issues).

4. Presentations of assignments Assignment presentations are very involving kinds of activities and they develop vital skills of ordering thoughts, making good materials and communicating well. An extension of this is to get the presenting groups to “seed” questions among the class (eg giving out questions to class members on pieces of paper). This was tried in the first semester 2017 History class and it built confidence as well telling the teacher a lot about what the group thinks are the main points and necessarily involves more students. Follow up questions can be encouraged from the class or supplied by the teacher. Many students are very nervous in presenting to the whole class – so “seeding” questions can help reduce the stress and improve the learning. Students could be

encouraged to use the OneNote pen to express their ideas (rather than read from a script or rely entirely on powerpoint slides).

5. Debates of ideas and concepts After a teacher-led presentation on defining a topic, students can be paired up to write as much as they can about views such as the benefits and downsides of a particular idea (eg colonialism). Groups of two can be turned into group of four (their immediate neighbours) and if there are sufficient ideas recorded on paper there can be good “for and against” discussions with the teacher walking around noting interesting points that can be shared at the end.

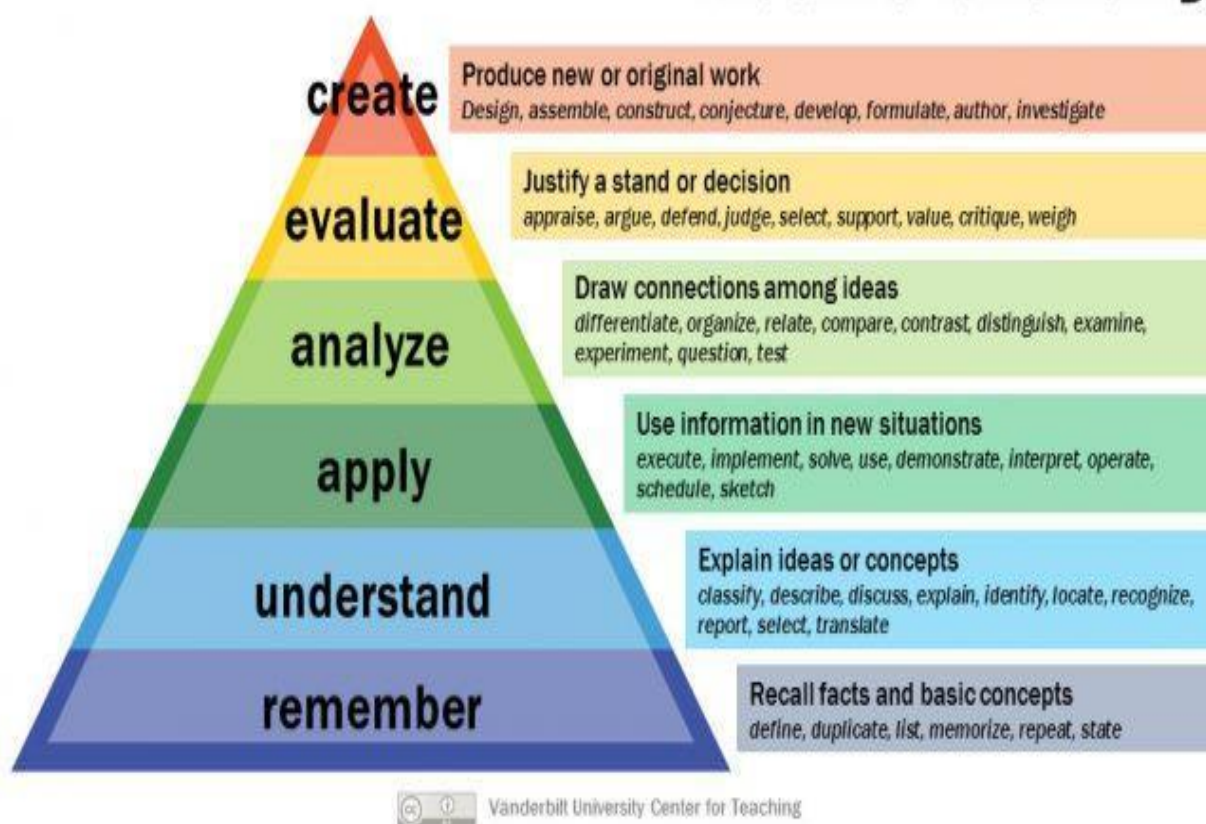
6. Visual and auditory senses

From the student interviews it was possible to record opinions on the other two senses : visual and auditory. Powerpoint slides are more interesting with pictures and minimal but relevant use of words. The question of maps is one that vexes both the Political Science and History courses. In history tests, naming places on maps delivered the lowest scores in the mid-term history tests in semester one 2017. However this is an area which teachers can improve students’ confidence with clear powerpoint maps using only relevant data. The use of video clips are popular and useful if the language is graded or pre-taught and the clips are short and discussed afterwards. The tone, energy and pitch of the teacher’s voice are important for setting the atmosphere of the course – as well as getting students to speak more loudly and clearly.

7. Bloom’s taxonomy of learning domains (first published in 1956)

Dr Benjamin Bloom suggested a pyramid of learning “domains”. It informs this research in that the “object of any history course must be to move up from the memory culture of rote learning in high schools to the tertiary objectives of developing understanding, applying the learning, using knowledge of the past to analyse the present and to apply the appropriate solutions. Students should eventually develop the skills of evaluating issues and be able to create original answers” (p 277). This is quite a big jump from their entry point to CamEd to where we want them to be by their graduation. The foundation year is an important bridge from traditional learning by remembering to the more important skills of understanding and applying knowledge.

Bloom's Taxonomy



8. Interviews with 8 students

Three questions were asked : (1) What activities or homework would you like to do ? (2) How can the teacher help Cambodian students to read more ? and (3) Do you prefer listening, seeing or doing as a way of learning (students were asked to rank them in order of preference).

The summary of ideas raised in question one included : group activities, competition between groups (scored games), assignment presentations and more research based homework. The latter could be structured by the teacher in a worksheet with questions and specific places to find the answers (eg specific a and clear instructions such as to go online and look at the Encyclopedia Britannica on James Vyner Brooke and read the first paragraph). This also encourages students to research information.

In question two students talked mainly about vocabulary difficulties. There are no graded language history books in the same way as there are for English literature. Suggestions included the teacher identifying key vocabulary words and, for example, to provide a matching table of words to meanings (an activity students would do before reading) and underlining the words just learned in the text to ensure an understanding of the context

Question three confirmed the kinaesthetic preference but put visual ahead of auditory. This may be the low sample size – but actually it does confirm how much students want to be actively involved in their learning. There were, however, productive comments about the visual and auditory senses mentioned in (6) above – remembering that users of English as a second language whose grasp of English is poor may distort the results to show more responses for visual and kinaesthetic senses. Generally, listening as a skill in English as a second language is the one students have most difficulty with.

9. Conclusion

This is an investigation into learning and teaching using the VAK approach on sensory preferences. It draws attention to engaging students by using all three senses in every lesson and focusing on involving students as much as possible. In the case of history there needs to be the further dimension of “present relevance” (connection to current realities, actions and motives). Ideas have been put forward for the less obvious influence of kinaesthetic learning. However, the point is made that by involving students more in their learning we can move up in the taxonomy levels described by Dr Benjamin Bloom.

Appendix 1 : VAK Learning Styles Self-Assessment Questionnaire

Circle or tick the answer that most represents how you generally behave.
(It's best to complete the questionnaire before reading the accompanying explanation.)

1. When I operate new equipment I generally:
 - a) read the instructions first
 - b) listen to an explanation from someone who has used it before
 - c) go ahead and have a go, I can figure it out as I use it
2. When I need directions for travelling I usually:
 - a) look at a map
 - b) ask for spoken directions
 - c) follow my nose (instincts) and maybe use a compass (showing north, south, east, west)
3. When I cook a new dish, I like to:
 - a) follow a written recipe
 - b) call a friend for an explanation
 - c) follow my instincts, testing as I cook
4. If I am teaching someone something new, I tend to:
 - a) write instructions down for them
 - b) give them a verbal explanation
 - c) demonstrate first and then let them have a go
5. I tend to say:
 - a) watch how I do it
 - b) listen to me explain
 - c) you have a go
6. During my free time I most enjoy:
 - a) going to museums and galleries
 - b) listening to music and talking to my friends
 - c) playing sport or doing DIY
7. When I go shopping for clothes, I tend to:
 - a) imagine what they would look like on
 - b) discuss them with the shop staff
 - c) try them on and test them out
8. When I am choosing a holiday I usually:
 - a) read lots of brochures
 - b) listen to recommendations from friends
 - c) imagine what it is like to be there

9. If I was intending to buy a new motor cycle, I would ;
 - a) read reviews in magazines and newspapers
 - b) discuss what I need with my friends
 - c) test-drive lots of different types
10. When I am learning a new skill, I am most comfortable:
 - a) watching what the teacher is doing
 - b) talking through with the teacher exactly what I'm supposed to do
 - c) giving it a try myself and work it out as I go
11. If I am choosing food from a menu, I tend to:
 - a) imagine what the food will look like
 - b) talk through the options in my head or with my partner or friends
 - c) imagine what the food will taste like
12. When I listen to a music band, I can't help:
 - a) watching the band members and other people in the audience
 - b) listening to the words and the beats (rythmn)
 - c) moving in time with the music
13. When I concentrate, I most often:
 - a) focus on the words or the pictures in front of me
 - b) discuss the problem and the possible solutions in my head
 - c) move around a lot, fiddle with pens and pencils and touch things
14. I choose household furnishings because I like:
 - a) their colours and how they look
 - b) the descriptions the sales-people give me
 - c) their textures and what it feels like to touch them
15. My first memory is of:
 - a) looking at something
 - b) being spoken to
 - c) doing something
16. When I am anxious, I:
 - a) visualise the worst-case scenarios
 - b) talk over in my head what worries me most
 - c) can't sit still, fiddle and move around constantly
17. I feel especially connected to other people because of:
 - a) how they look
 - b) what they say to me
 - c) how they make me feel
18. When I have to revise for an exam, I generally:
 - a) write lots of revision notes and diagrams
 - b) talk over my notes, alone or with other people
 - c) imagine what I will write (think how to describe something)

19. If I am explaining to someone I tend to:
- a) show them what I mean
 - b) explain to them in different ways until they understand
 - c) encourage them to try and talk them through my idea as they do it
20. I really love:
- a) watching films, photography, looking at art or people watching
 - b) listening to music, the radio or talking to friends
 - c) taking part in sporting activities, eating fine foods and wines or dancing
21. Most of my free time is spent:
- a) watching television
 - b) talking to friends
 - c) doing physical activity or making things
22. When I first contact a new person, I usually:
- a) arrange a face to face meeting
 - b) talk to them on the telephone
 - c) try to get together whilst doing something else, such as an activity or a meal
23. I first notice how people:
- a) look and dress
 - b) sound and speak
 - c) stand and move
24. If I am angry, I tend to:
- a) keep replaying in my mind what it is that has upset me
 - b) raise my voice and tell people how I feel
 - c) stamp about, slam doors and physically demonstrate my anger
25. I find it easiest to remember:
- a) faces
 - b) names
 - c) things I have done
26. I think that you can tell if someone is lying if:
- a) they avoid looking at you
 - b) their voices changes
 - c) they give me funny vibes (feelings)
27. When I meet an old friend:
- a) I say "it's great to see you!"
 - b) I say "it's great to hear from you!"
 - c) I give them a hug or a handshake
28. I remember things best by:
- a) writing notes or keeping printed details
 - b) saying them aloud or repeating words and key points in my head
 - c) doing and practising the activity or imagining it being done

29. If I have to complain about faulty goods, I am most comfortable:

- a) writing a letter
- b) complaining over the phone
- c) taking the item back to the store or posting it to head office

30. I tend to say:

- a) I see what you mean
- b) I hear what you are saying
- c) I know how you feel

Now add up how many A's, B's and C's you selected.

A's =

B's =

C's =

If you chose mostly A's you have a VISUAL learning style.

If you chose mostly B's you have an AUDITORY learning style.

If you chose mostly C's you have a KINAESTHETIC learning style.

Appendix 2 : Actual responses from a spreadsheet of 127 students in approximately the same numbers across from History classes E, F, G, H (converted from a spreadsheet to PDF to Word).

Visual	Auditory	Kinaesthetic
8	14	8
6	19	5
15	14	1
9	6	15
11	17	12
11	14	5
5	11	14
8	8	14
6	11	13
9	7	14
10	5	15
7	10	13
6	13	11
9	11	10
9	11	10
7	10	13
8	12	8
8	12	10
11	7	13
12	4	14
9	9	12
5	9	16
14	9	7
11	10	19
4	12	14
11	13	6
8	14	8
12	9	9
8	13	9
5	15	10
11	10	9
11	8	11
9	6	15
12	9	9
16	6	8
9	9	12
8	8	14
8	12	10
10	13	7
13	10	7

11	8	11
9	9	12
8	8	14
4	8	17
10	9	11
13	8	8
14	8	8
9	6	15
11	10	9
10	12	8
7	12	11
7	10	11
7	8	15
9	13	8
11	12	7
12	10	8
4	9	17
10	10	10
11	5	14
6	10	14
9	11	10
7	8	15
5	13	12
13	3	14
10	12	8
11	7	12
4	14	12
9	12	9
12	6	12
12	11	7
6	8	16
11	10	9
17	14	9
5	12	13
4	13	13
9	16	4
8	8	14
11	10	9
15	4	11
13	9	8
12	10	8
13	5	12
11	9	10
13	11	6
9	13	8

8	14	8
8	13	9
7	13	10
9	10	11
9	12	9
8	12	10
11	12	7
7	12	11
7	10	13
11	12	7
10	12	8
14	7	9
11	9	9
8	11	11
5	19	6
6	13	11
11	10	9
10	7	13
9	11	10
10	8	12
9	9	12
14	0	16
11	12	7
12	9	8
8	11	11
7	14	9
8	16	6
10	6	14
11	9	10
10	10	10
6	13	11
11	14	5
11	6	13
6	4	20
10	9	11
7	11	12
9	9	12
13	6	11
7	10	13
7	12	11
6	10	14
8	6	16
1181	1287	1364

Appendix 3 : Pre-teaching vocabulary exercise before students complete the survey

Word		Meaning
To operate (v)	7	1. Do it yourself (abbreviation letters) for not employing a workman but enjoying trying to do it without professional help (eg painting the walls of your house)
Directions (n)	4	2. Paper descriptions
Dish (n)	10	3. Different surfaces (eg silk is smooth, cotton is rougher to touch, you can slide your fingers over plastic, stone is hard an uneven)
Recipe (n)	15	4. Information on where to go
Instincts (n)	12	5. Places where you can see pictures and art
Verbal (adj)	11	6. More formal word for furnitures (tables, chairs
Demonstrate (v)	14	7. To use (eg some machinery , i-phone, laptop)
Galleries (n)	5	8. What writers give you as their summary and opinions
DIY	1	9. Play with something (like your pen in your hands) without thinking about it
Brochures	2	10. Food
Reviews	8	11. Using spoken words
To work it out	16	12. Feelings, natural and immediate responses
Textures	3	13. Possible outcomes, results of actions
To fiddle about	9	14. Show people how to do something by doing it yourself
Furnishings (n)	6	15. Plan for making food
Scenarios (n)	13	16. Form your own way of doing something
Imagining (n)	17	17. Thinking, picturing in your mind

Further reading

1. "VAK learning styles" questionnaire V. Chislett& A. Chapman (2005)
2. "Enlivening Secondary History" by Peter Davies & Rhys Davies (2012)
3. "Learning Teaching" by Jim Scrivener (1994)
4. "The taxonomy of educational objectives" by Benjamin Bloom (1956)
5. "Cognitive, affective psychomotor" by A.J.Harrow (1972)
6. "Accelerated Learning in the classroom" by Alistair Smith & Oliver Shenton (1996)