CALL programs such as those used in most university language programs today, represent one strand in a long line of educational technologies. Educational technologies are any tools that teachers or learners use to speed up learning or to render it more efficient. Instructed learning, teaching, at its base consists of a teacher guiding a student towards some cognitive change, and an educational technology is any tool that either of them use to expedite the process. Pens, books, blackboards, slides, tape-recorders and so on, are all educational technologies which, at the time of their introduction, allowed teachers and students to do more: students to progress more quickly, and teachers to reach larger numbers of students. It is worth keeping this background in mind when we think about the current situation where various kinds of computer software are changing both classrooms and individual learning situations in remarkable ways.

There is a recurrent conflict of views between educational administrators, charged with managing...
the budgets for large programs, and teachers with expertise in educational technologies. Administrators have frequently viewed CALL technologies as means of reducing costs; in its simplest iteration as a means of replacing teachers with computers. (Salomon 1990, p. 50). CALL practitioners and developers, on the other hand, have overwhelmingly rejected this simplistic view, and instead focused on the role of CALL technologies as means of allowing teachers to re-orient their own role from the didactic to the facilitatory, and on the dangers to good educational practice of the naive implementation of CALL technology without adequate teacher support.

*Although technology undoubtedly does support learners in a myriad of ways, it is also true that without adequate preparation, practice, feedback and support, many learners are unable to make effective use of technology’s affordances, and indeed may suffer from using technology inadequately.* (Hubbard, P. and Reinders H., 2013, p. 2).

This paper describes a small-scale project which examined the use of a variety of CALL and CALL-type approaches to teaching English as a foreign language in university classrooms.

**CALL and autonomous learning**

Computer and online literacy is now unarguably essential, not only in English language education, for developing the capacity to deal with an increasingly digital world (Kumaravadivelu, 2012), and teachers and curriculum managers certainly need to be able to evaluate the use of computers or online tools (Robb, 2006; Warschauer, 2002).

Among some teachers who oppose the use of computers in classrooms, there is often a fundamental misconception of the purpose of CALL: that it is a means of replacing the teacher with a machine. These teachers often say things along the lines of, ‘no computer can do my job;’ ‘it’s not fair to my students to just sit them in front of a computer while I do nothing;’ and ‘no one wants to learn a language by talking to a computer.’ It may be that such teachers have in mind the stereotypical image of a 1970s language laboratory with a teacher stationed at the front of the class while each headphone-wearing student diligently goes through drill exercises in front of their own monitor. The teacher’s only role, in this conception, appears to be simply marking off attendance and checking whether the students are in fact doing the tasks required of them. This educational panopticon model may indeed have existed, and in fact the advertising material produced by companies selling language laboratory software frequently referenced this model, emphasising the easing of the teacher’s burden as a selling point.

However, current CALL practitioners in fact are almost unanimous in their linking of CALL with learner autonomy, and of the role of the CALL teacher with the movement towards teacher
as facilitator rather than solely as fount of knowledge. This identification of CALL methodologies with autonomous learning methodologies rests on the ‘you can lead a horse to water, but you can’t make it drink’ educational philosophy that teaching and learning are two distinct activities. While teaching may be under the control of the teacher, learning is something which only the learner can do. In this philosophy, the teacher’s role is not so much to pass on knowledge, but to create an environment rich in opportunities for the students to learn, and to guide them in ways and means of taking up those opportunities, to encourage them, and to respond to their questions and concerns. In any classroom in which CALL is used, ranging from language laboratories where the greater part of the syllabus is mediated by computers, to ordinary classrooms where just some small part of the syllabus includes online materials, the primary object of this CALL element is to provide students with opportunities they would not otherwise have had to use the target language, while at the same time freeing up the teacher from focussing mainly on presentation of material, and allowing her to move around the classroom responding to specific requests for assistance.

In other words, CALL, in almost all its forms when used correctly, is firmly rooted in the current communicative, learner-centred language teaching and learning paradigm. (Feez, 2001) This paradigm was built on the structural model developed in the 1980s, in which language systems were seen as needing to be organised into learnable sets, and then ‘taught’ to learners through drills and exercises. (Richards and Rogers, 1986, Yalden, 1987). The current learner-centred, communicative approach, on the other hand adds to this model a focus on the learner’s needs, abilities and motivations at the time of learning and aims to create activities which scaffold learners as they engage in interactions and meaning-making in the target language (Brindley, 1984, Nunan, 1987).

It should be noted, too, that any successful implementation of CALL strategies, materials and so on, relies not only on the model of the learner as autonomous learner, but also on the model of the teacher as autonomous teacher. The notion that teacher and learner autonomy are tightly intertwined, and together are vital to the language learning process, is now a a commonly-held view throughout the English language teaching discourse community (Barfield and Nix, 2003, Kohyama and Skier, 2005, Reinders, H. 2007).

This view conflicts, of course, with the managerial approach of many administrators and of the centralised management model of some, though not all, CALL software companies. Where the CALL materials are seen as simply traditional structural drills and exercises transplanted from paper textbooks to online ones, and the teacher is seen as being relieved of the burden of marking and monitoring of these exercises, in that the software handles these tasks, the implementation of such programs in fact becomes a managerial project to de-skill and de-legitimise teachers, to
reduce rather than increase their autonomy. This regressive, back-to-the-70s approach to educational management which is evident in the increasing prevalence of university-wide CALL programs implemented without any involvement of teachers and without any links to classroom activities, is not only a waste of the immense opportunities provided by online learning, but is largely ineffective (Nielson, 2011, Reinders & Darasawang, 2012).

In short, Little’s definition of language learning autonomy gives a clear direction for the evaluation of CALL processes, as well as for other classroom approaches.

Success in language teaching is governed by three principles. The principle of learner involvement entails that learners are brought to engage with their learning and take responsibility for key decisions; the principle of learner reflection entails that they are taught to think critically about the process and content of their learning; and the principle of target language use entails that the target language is the chief medium of teaching and learning—because language use plays a key role in language learning, autonomy in language learning and autonomy in language use are two sides of the same coin, the scope of each constraining the other. (Little, 2007, p7).

The three principles of learner involvement, learner reflection and use of the target language, are therefore central to the success or otherwise of any CALL process.

The study

Eight first and second year university English classes in three universities in Japan, one in Taiwan and one in Vietnam, with an average of around 30 students per class (a total of six teachers and approximately 250 students), and one remedial English program of 179 students using CALL software as it’s sole syllabus, were involved in the study. Each class used one or more forms of CALL software, and teachers and students were asked to comment through surveys and interviews at regular intervals on their experiences of using their respective software. The software used included two large-scale integrated classroom language learning packages, DynEd and English Central, two online packages used for out-of-the-classroom drills and tests, U-Cat and ALC Net Academy, and a variety of free online resources, including Elllo, Real English, Lingorank, Lyricstraining, BBC Learning, and so on. In all of these cases except for the remedial one, the software formed only a part of the overall syllabus, both in and out of the classroom.

Although questionnaires were used to some extent for collecting data to give an overall picture, the data analysis was primarily qualitative, relying on what teachers and students said, in their own words, about their experiences. There were two reasons for this. First, the study spanned several different groups of students and teachers following different curricula in different institutions, and using different kinds of software. Second, the purpose of the study was not to evaluate
specific pieces of software, nor specific methods of using it, but rather to identify the issues that students and teachers found to be important in their experience of using CALL materials, and to propose some suggestions concerning the selection, implementation, and evaluation of such.

**Findings**

**Overall satisfaction levels**

Three types of questionnaires were used, first to gauge overall satisfaction among groups using the integrated in-class software packages DynEd and English Central; second to gauge overall satisfaction among groups using two out-of-class packages, U-Cat and ALC Net Academy; and third to gauge student overall levels of support for using online resources in general.

1. **Integrated in-class software packages 1: Dyned for remedial classes.**

179 students at one university were enrolled in a remedial program, after having failed to gain credits from one or more compulsory English classes. For these students the DynEd program constituted their sole syllabus, with criteria for the award of credit being that a student had completed 14 hours of study under the guidance of the teacher, attended at least 12 out of 15 class sessions (the same as students in other English classes), and passed a completion test based on the units they had studied. The classes took place once per week, with a teacher in attendance to work with students and guide them in using the software. There were few other activities beyond the software since each student worked at their own pace, and at the level determined by the embedded placement test.

The end of semester evaluations were overwhelmingly positive. 94% of students thought they had been placed correctly.

Q6 Do you think the DynEd Placement Test put you in an appropriate level?

<table>
<thead>
<tr>
<th></th>
<th>Answered</th>
<th>Skipped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>178</td>
<td>1</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Answered: 178  Skipped: 1
96% thought that their English level had improved,

Q7 Do you think your English has improved? あなたの英語は上達したと思いますか？

Answered: 178  Skipped: 1

and, most interestingly, 88% said that the experience had changed the way that they thought about language learning (63% saying they had changed their views somewhat, and 25% that their views had changed a lot).

Q13 Has DynEd changed the way you think about studying? DynEd の学習を通して、あなたの学習に対する考えは変わりましたか？

Answered: 176  Skipped: 3

This group is of course not typical of all students. By definition, having failed to gain credits in at least one English course they are likely to include a high proportion of students at very low levels of English, or students with an antipathy towards participating in English classes. For both groups regular classes are likely to be unpopular, and therefore it is not surprising that they welcomed the opportunity to gain the credits that they needed in a highly structured but flexible way. Nevertheless, the exceptionally high approval rating suggests that not only was the experience
relatively stress-free compared with other classes, but that there may be lasting benefits in that a large proportion had come to see English learning in a new light. Comments by these students also revealed a high level of satisfaction with the program.

2. **Integrated in-class software packages 2: Dyned for high level classes.**

Two surveys were carried out in two classes of 30 students each, after two semesters of one class using DynEd, and another using English Central in differing ways, first as blended learning, with the DynEd or English Central content re-inforced in class, and around 25% of class time devoted to such content; and second as out-of-class learning with the DynEd content and class content entirely separate.

The proportion of students who thought their English had improved as a result of the software was similar to the remedial students, at 95%.

Q5 Do you think your English has improved? あなたの英語は上達したと思いますか？

Answered: 23  Skipped: 1

<table>
<thead>
<tr>
<th></th>
<th>Answered</th>
<th>Skipped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

However there was a strong preference for DynEd software to be used in a blended way (75%), rather than as separate from the class content, wholly as homework (25%).

Q7 How do you think DynEd works best, as blended learning (like we did in Semester I) or as homework (like we did in Semester II)? DynEd の勉強方法は、ブレンテッド・ラーニングの方（春学期）がいいか学外復習の方（秋学期）がいいか、どちらでしょうか？

Answered: 23  Skipped: 1

<table>
<thead>
<tr>
<th></th>
<th>Answered</th>
<th>Skipped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blended Learning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homework</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
This liking for the blended approach, together with a generally positive view of the software, was reflected in a similarly high proportion of comments.

*I think that DynEd and voice diaries are very important to improving my English skills. Because, when I learn by DynEd, I understand right pronunciation and grammar. And my voice can be recorded in DynEd, so I notice my mistake.*

*I have a confidence about Speaking up of DynEd because I tried to pronounce correctly and carefully so I hope my speaking up score became good. I feel I could improve my pronunciation and I hope that this study for going abroad or future’s job. Suddenly I thought that third party can know how did my improvement. It was so tired to do same thing in DynEd but it can lead to success.*

*DynEd is very important for growing up skill of my English. DynEd teaches me the pronunciation of right English. Then, it is practice for get used to native English. For example, I was troubled by difference in the pronunciation of “travel and trouble”. However I was able to know the difference in a part of the pronunciation by DynEd. In voice diaries, I was conscious of pronunciation like native speakers.*

*Dyned is good things to improve my English pronounce. I did Dyned as hard as I could. I feel my English pronounce is better than before. Maby it is as a result of Dyned. Voice diary is very pleasant homework. I feel this is like speaking to with my teacher. So, I could enjoy doing this.*

*I think Dyned is useful for emploving my speaking ability. School life is the most useful part. I’m planning to go to Australia. I can make use of this part’s phrases in conversation.*

*I have doing DynEd since spring. I couldn’t understand some sentences completely, but now, I can understand a lot of sentences and I can speak. So, I think that my English ability or skill has improved than before. DynEd is very useful for me to study natural english. If I don’t know grammatical sentences, I can learn by DynEd, in my opinion.*

**3. Out-of-class software packages: U-CAT and ALC Net Academy.**

Both U-CAT and ALC Net Academy are commercial software which are closely managed outside the university, by the companies which sell them, and which are used solely as homework assignments outside class. These programs were markedly less popular than the integrated
programs, with both gaining overall approval ratings of less than 25%, and 80–90% of respondents preferring a blended approach.

\[
\begin{array}{c}
\text{English improvement} \\
\text{Worth the time spent} \\
\text{Prefer blended learning}
\end{array}
\]

Comments on both of these programs were, in more than 80% of cases, strongly negative (approx 60%), or negative with suggestions for changes:

*I do not see good in just doing exercises. It’s boring, and even teachers do not check. How do I know what is my level?*

*I don’t understand the computer program. Sometimes I did the work but it did not show. Or I did the work, but just by clicking any answer.*

*The exercises in Ucat are not connected with our class at all. Maybe they are good TOEIC practice, but I don’t know whether my TOIEC score increase.*

*It takes a long time, if you do it right, think about questions. but lots of students just click. Why not check the sentences in class? or we should read the reading in class and ask the teacher.*

4. **Overall satisfaction with and interest in small-scale software used as supplementary material.**

The approximately 250 students in the main group (not including the remedial students) were asked at various times for their reflections on all the things they were doing in class, of which the CALL software was a part. This part of the data is qualitative, in the form of short comments, and stretches of discourse found in longer reflective pieces. The data has been categorised to reveal
overall impressions, major themes, and to give a rich picture of how the material was experienced by students.

Not every piece of software or app was valued equally, with approval ratings varying from 80\% for Real English to 55\% for BBC Learning. However, in general there was a broad range of comments, and a considerable depth of thinking was noticeable concerning opinions on the use of online resources in classes which used apps and websites which supplemented the classroom teaching material, or which were non-assessable parts of the syllabus. Overwhelmingly, there was support for the use of online resources.

*Using the internet makes me feel that English is really useful. I like Lyrics Training because I can be interested in my liked songs, and Lingorank let me find easy listen to TED talks, with grammar study.*

*It’s good to use lots of internet, youtube, www, and so on, but sometimes it’s too difficult for us. The sites you show us make it easy for us to understand. Please show us some more, and more useful cellphone apps.*

Some students commented on the contrast between CALL programs that they had taken part in before, or that their friends were taking part in, and the more ad-hoc style of teachers using a variety of applications and web pages.

*It’s (using Lingorank) harder than DynEd, but I think useful too. Both of them are good. DynEd gives me grammar like a textbook. I know that I have learned grammar and I know what it is, but Lingorank is more interesting. I can choose video I really want to know, and study grammar through that.*

Others commented on the autonomy they felt they were accorded by being able to make informed choices.

*The web page lingorank makes me feels if I am making my decisions. I can search youtube and TED what I like, then check its difficulty level. Or I can choose difficulty level and them choose one of those. It’s give me the power to choose. nd I can make listening exercise out of some listening I really want listen to.*

*BBC learning is most useful. We can choose to study just the grammar we studied in class, and*
practise and learn again. It's good for our brains.

And some of these illustrated that they had gone beyond simply using the materials presented to them, and had followed the teachers’ example in actively seeking out new material.

*I found an APP, I told you, Anki. I think it is good. I can learn English words, and it's helps me. It's organised.*

Others commented on the efficacy of one or another of the materials.

*Lyrics Training is fun. I can find any song I like and do the exercises. It's not like learning but when finish I know I learned grammar.*

*I really like ello. The students make some mistakes, but they speak with confidence, and I think they are not so different to us.*

*Ello is not as good as others. We can just listen, but with for example BBC there are exercises to help us understand and learn new grammar, and explanations of English.*

5. Teachers’ experiences

The experiences of teachers, and their attitudes towards CALL in general and the specific CALL applications in this study, were gleaned from interviews carried out in person and through online text messaging. The text messaging was carried out on a shared online platform, so that all the teacher-participants were able to read what others were saying, and to respond if they wanted to. The interview data was analysed in a similar way to the way the student comments were analysed, through a broadly grounded approach and through categorisation analysis.

The teachers had all used either DynEd or English Central integrated packages, and also either UCAT or ALC Net Academy out-of-class packages. Two of the teachers (T1, T2) were overall not in favour of any kind of CALL at the beginning of the project, two were neither in favour nor opposed (T3, T4), and two described themselves as CALL specialists (T5, T6). One of the two teachers (T1) opposed to CALL in the beginning changed her opinion to some extent after experiencing some contact with CALL in her own classroom and after discussion with other teachers. The other ‘opposed’ teacher (T2) did not change opinions, and the remaining four did not change their views substantially.
1. Blended learning vs out-of-class homework

Blended learning, and the contrast between blended learning and out-of-class CALL, was new to four of the teachers (T1, T2, T3, T4) at the beginning. The four teachers (including T1 and T2) who had experience of the out-of-class CALL packages UCAT and ALC, were already highly critical of both, and particularly of UCAT.

_T1_ There was a CALL component, compulsory in one of my second-year classes last year. It was just chaotic. The students were supposed to do some sort of drills from a TOEIC textbook, I think, but online. I had to check that they’d done the right amount of questions, but I didn’t know what questions they were, or even what level, what areas they covered, so I couldn’t have included them in my classes even if I wanted to.

_T5_ I had a CALL element to my class at one of the universities I worked at. It wasn’t really too intrusive. It was all in Japanese (the interface), and I was supposed to check it to see that the students had done it. There were occasional disputes where students said they’d done it but the system hadn’t recorded their work. I didn’t really see the point. It was mostly very simple reading comprehension, with a bit of pronunciation practice, but it was really nothing to do with my syllabus.

However by the end of the project all of the teachers except T2 were open to the idea of CALL, and strongly in favour of blended learning.

_T3_ English Central was an eye-opener for me. There’s so much variety in the content available. I only used the free version, which only gives students a little of the actual CALL content (exercises, pronunciation practice and so on), but still it was really popular with students, and I could have them do it for homework and then follow up in class with my own activities based on what they’d watched.

_T1_ Blended learning really makes sense. It’s a kind of flipping of the classroom. I can have the students do the kind of listening or pronunciation practice that they used to have to do in the classroom, and then I have much more time to work on grammar, and on specific aspects of the listening and reading texts: addressing the areas where they need teaching, rather than just presenting each unit of a textbook.

One teacher, T2, though, remained not in favour of any CALL, blended or not.
Computers are useful, of course, even in the classroom for PowerPoint, essay writing and so on, but a computer can’t replace a teacher. Talking to a computer is not real talking, not communication. The students are better off doing writing or reading for homework, and leave the speaking for the classroom, where I can correct them.

2. Teacher as facilitator

The idea of the teacher as facilitator, creating opportunities for students to find their own materials, and to work out problems for themselves, then being available to trouble-shoot, was a common theme amongst all the teachers, including T2. Four of the teachers saw this role as being made easier by a judiciously chosen CALL program, saying that having students use computers during class time gave them the chance to work with small groups, or to direct their attention to students with particular needs at particular times. T3 was in favour of the teacher as facilitator model, and also eventually enthusiastic about blending CALL materials with classroom activities but did not think that the computer element made this easier.

I’m absolutely on board with the idea of bringing the DynEd stuff into the classroom, but I can’t say it’s easy. It has lots of value, but it really requires much more work than just following a textbook.

and T1 saw no connection between the two.

Working with students individually, addressing their needs as they come up is a constantly changing situation. Having to cope with a computer system that I don’t really understand, and frankly don’t think it’s very good, just makes things harder.

3. Teacher versus machine

Predictably again, T2 voiced the opinion strongly that he saw CALL as a means of de-skilling the teacher, replacing him with a machine. Others also referred to this idea with some frequency, in order to rebut it.

T6 I often hear, particularly from older teachers, the old thing about computers replacing people, but I think it’s really just a case of being stuck in an outdated mindset. I can understand with those language labs that you used to see with a kind of technician twiddling dials at the front, and the students all isolated from each other listening to drills on a tape deck. But even the worst CALL these days is quite different. It’s adaptive to students levels, the content is interesting, and the best CALL is based
on sound principles, like the timed repetitions of things like Word Engine or Anki.

4. Grammar and communication

The fourth area of concern was to do with the capacity for the CALL materials concerned to address grammatical issues that students may have had, and to provide a grammatical framework for the syllabus. Most agreed with T6 that software that incorporated a grammatical syllabus had great value

T6 The thing I really find good about DynEd is the sound grammar base. The support materials have a very clear listing of the grammar concepts taught/practised in each unit, and the students can see that too.

On the other hand,

T4 You really need a textbook in addition to the software if you want to give the students a firm set of grammatical content for your course. Or you need to create a grammatical/functional syllabus yourself. Then tying that in to the software would be really a big job. You could do it with English Central, or with something like the BBC, perhaps, but not with something you can’t bring to the classroom.

Others took a more flexible approach, with T5’s comment being representative

T5 It’s possible to have a grammar base to your syllabus with something like, for instance, DynEd, but really for most software it’s missing the point. You can have a grammar syllabus in a different, more traditional class, but the whole point of a good flexible CALL program is that it works inductively: you expose the students to lots of input, give them the impetus to output something, to speak and write in English, then you address the problems as they arise. And lots of small apps and websites make this really easy. Even when they don’t, you can easily just go to your favourite grammar reference site, or even just google it.

Conclusion

In short, then, both teachers and students were largely approving of most of the CALL initiatives the allowed for a connection between the CALL activities themselves and the classroom. Both teachers and students were least approving of the two software packages that were used out-of-class and were incompatible with a blended approach. (In fact ALC could be used to a small extent in a blended way, even though in reality it seems that it rarely is.) Teachers who had
worked with either of the integrated packages were largely in favour, or at least not strongly opposed in principle, with one exception. The use of apps and websites in an ad-hoc way was also generally popular.

The remedial program was perceived quite differently from the others. Although there is only a small blended element, for the particular kinds of students who end up in the program it seems that the highly structured nature of the program, and the exceptionally clear assessment requirements, are both popular and effective in at the very least changing student perceptions about language learning, and perhaps in improving language outcomes, though this project did not measure such outcomes.

References
（2017年4月1日受理）
ST. ANDREW’S UNIVERSITY
BULLETIN OF THE RESEARCH INSTITUTE

Vol. 43 NO. 1 2017. 10

[Japan-Korea International Academic Seminar]
36th International Academic Seminar Summary ........................................... (1)
37th International Academic Seminar Summary ........................................... (5)
The Importance of Quantitatively Comprehending the Advancement
of Reconstruction following Disasters ................................................... EGAWA Akio (9)
Discrimination against Women Workers in Japan ................................... KARUBE Kelko (31)

[Designated Research Projects]

Articles
To Raise the Administration Rate of Visual Acuity Test in Kindergartens,
Nursery Schools and Medical Checkups of Three-Year-Old Children: TAKAHASHI Hitomi
Visual Acuity Test “Who Ate the Doughnut?” ........................................... KOZAKI Masaru (45)
Discourse and Reality of Overseas Life of Bangladesh Migrant Workers: ETO Takashi
Between Greece and Rural Bangladesh ................................................... MINAMIDE Kazuyo (55)
Survey on Camping Opportunities in Social Welfare Situations around Osaka City Area, Japan (2):
Focus on 37 Organizations’ Camping for People with Disabilities ................ TAKEUCHI Yasuko (73)
A Study of Duality of Communication in the Works of S. Kierkegaard ........... ITO Kiyoshi (89)

[Collaborative Research Projects]

Articles
Mt. Merapi as Depicted in the Babad Tanah Jawi: FUKAMI Sumio (101)
Spirits and Natural Disaster ................................................................. (101)
Sales Strategies of Japanese Agricultural Products and Foods at Hong Kong Food Expo OSHIMA Kazutsugu (117)
Design of “third place” for the elderly ................................................... SUZUKI Koutaro (127)
Practice of Making Places of Residence for Younger People with Dementia
——Focusing on the Momoyama Nagomu Self-help Group— SUGIHARA Kuniko (163)
Study on Conditioning of University Soccer Players (First Report) MATSUMOTO Naoya
Based on Stress Responses, Hopkins Symptom Checklist (HSCL), KAWANO Yukiko
and Diagnostic Inventory of Health and Life Habit (DIHAL, 2) DEUMURA Shinichi
HIRAI Hiroshi TAKEUCHI Yasuko YOSHIMURA Masafumi (187)
The Development of Infrastructure prepared for Natural Disaster
——Focus on Water-Supply Business— TASHIRO Masayuki (197)
“Home-making” in Taiwan: KOIKE Makoto (213)
Indonesian Muslims’ Activities ..............................................................
Using CALL Materials in and out of Classrooms: Michael CARROLL (237)
Gamification in Teaching Mathematical Modeling to Social Science Students —— OHMURA Shota (253)

Academic, Educational and Cultural Exchange between Japan and Korea
—— The Momoyama Gakuen-Keimyung University Exchange Programme, 1981-2016 ——
SUH Yong-Dal
IYODA Mitsuhiro (271)

The Research Institute
of
St. Andrew’s University
1–1 Manabino, Izumi, Osaka 594–1198, Japan