SIF AU Conceptual Data Model, NSIP

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This document proposes a conceptual model underlying the SIF-AU 3.4.3 data model. The conceptual model is at the level of entities and relations between them; attributes are not listed. All objects in the Australian data model are represented; some objects are represented as relations between entities, rather than as distinct entities.
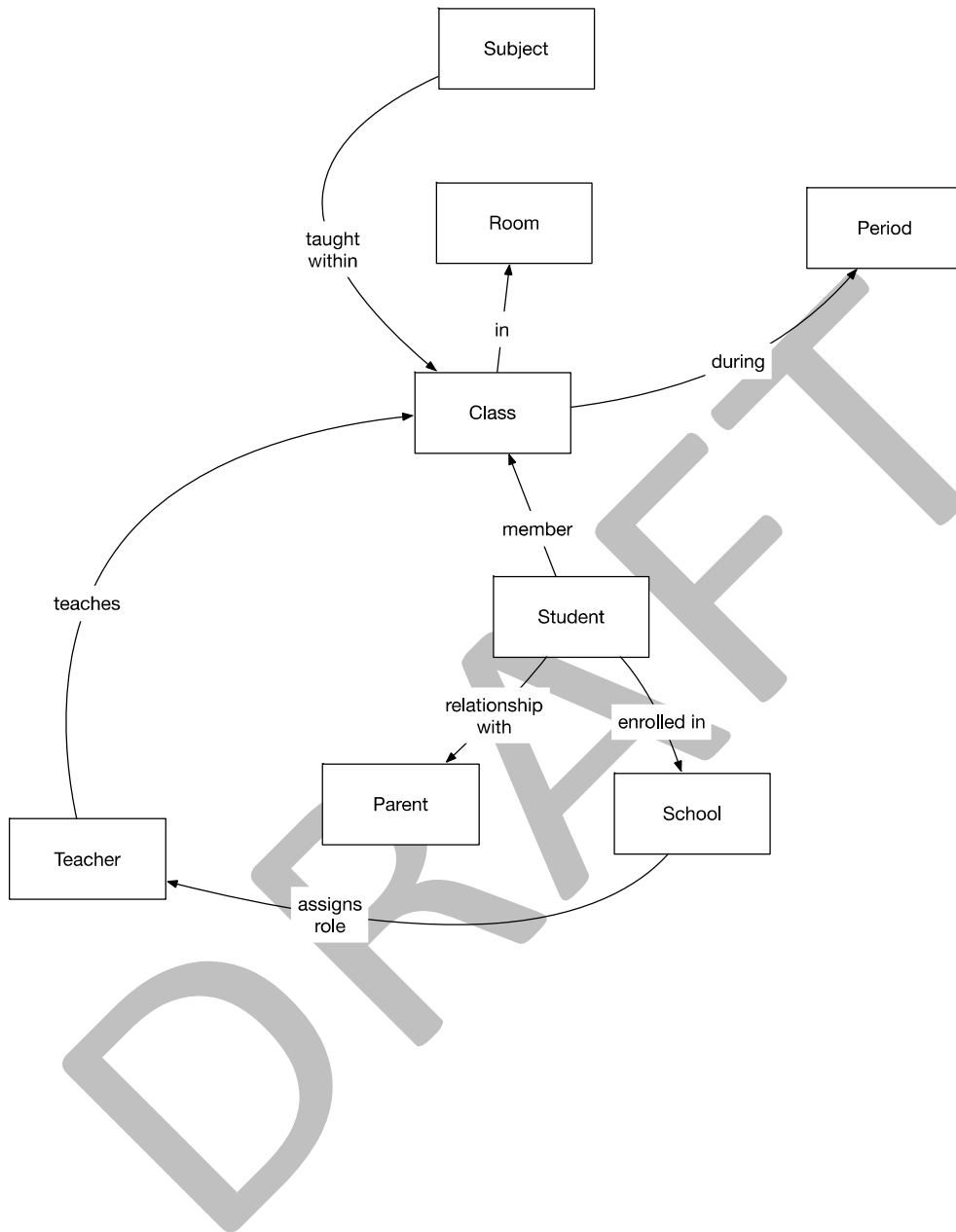
For clarity, the conceptual model is broken up into use cases:

- Enrolment
- Provisioning
- Timetable/Attendance
- Finance/Resources
- NAPLAN
- Wellbeing
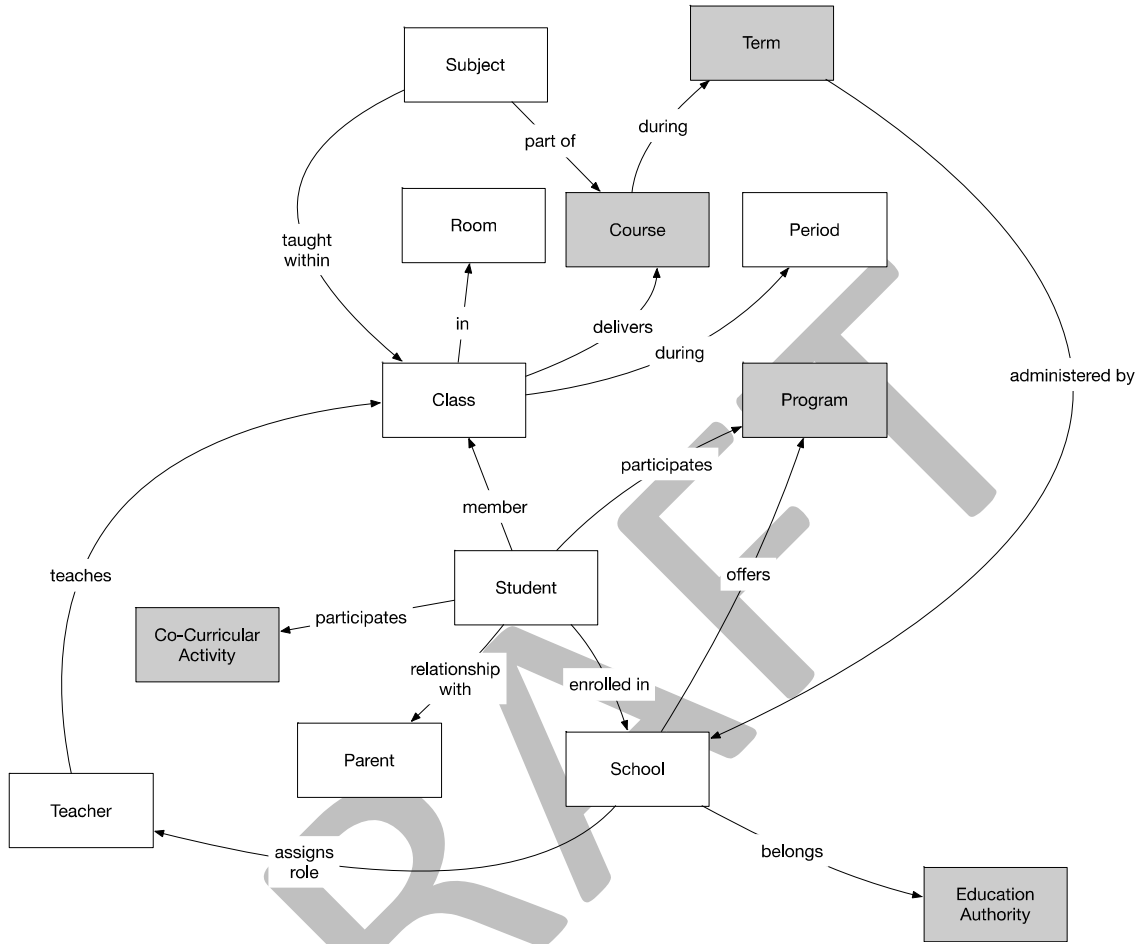- Classroom Assessment
- Remainder

Entities are named with names that the schools sector business can relate to readily, rather than the current names of SIF-AU objects. A list mapping the conceptual model names to SIF objects follows.

Enrolment

The following are the primary objects involved in enrolling a student onto school systems.

```
                        ┌──────────┐
                        │ Subject  │
                        └──────────┘
                             │
                    ┌──────────┐        ┌──────────┐
                    │   Room   │        │  Period  │
                    └──────────┘        └──────────┘
              taught
              within         in                during
                        ┌──────────┐
                        │  Class   │
                        └──────────┘
                             │
                          member
              teaches
                        ┌──────────┐
                        │ Student  │
                        └──────────┘
                   relationship      enrolled in
                      with
                    ┌──────────┐        ┌──────────┐
                    │  Parent  │        │  School  │
                    └──────────┘        └──────────┘
        ┌──────────┐
        │ Teacher  │      assigns
        └──────────┘       role
```

- Subject — taught within — Class
- Room — in — Class
- Class — during — Period
- Teacher — teaches — Class
- Student — member — Class
- Student — relationship with — Parent
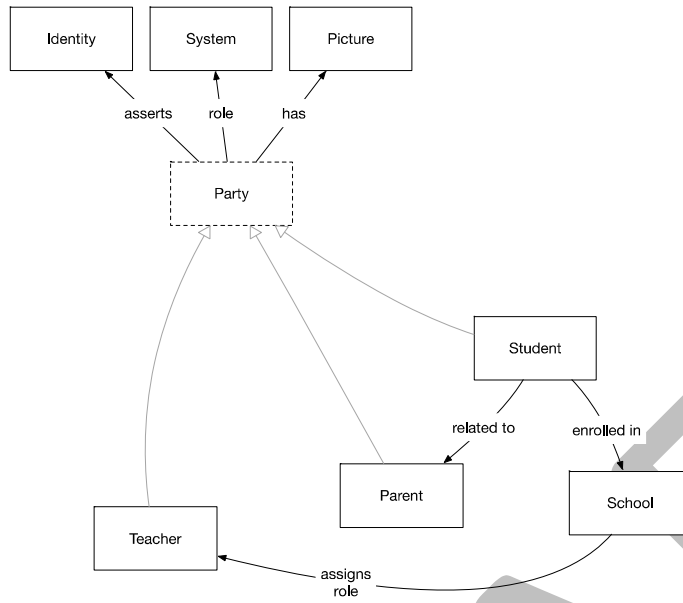- Student — enrolled in — School
- School — assigns role — Teacher

The following includes secondary objects which may also be invoked during student enrolment (shaded grey).
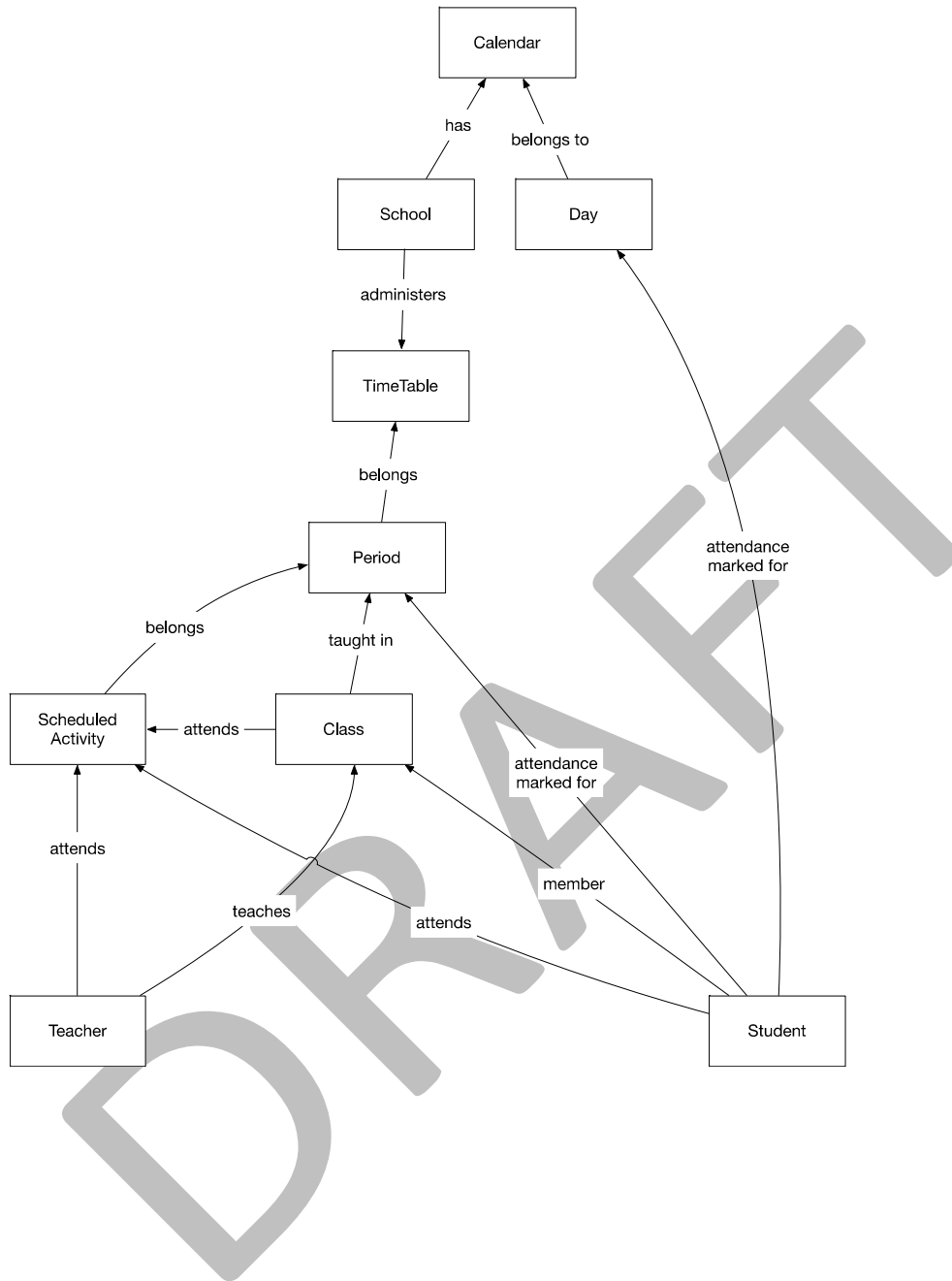
Provisioning

The grey arrows point to superclasses; e.g. Party is a superclass of Teacher, Parent, and Student. The dotted entity Party is not represented separately in the SIF-AU data model; a common type contains Personal information.
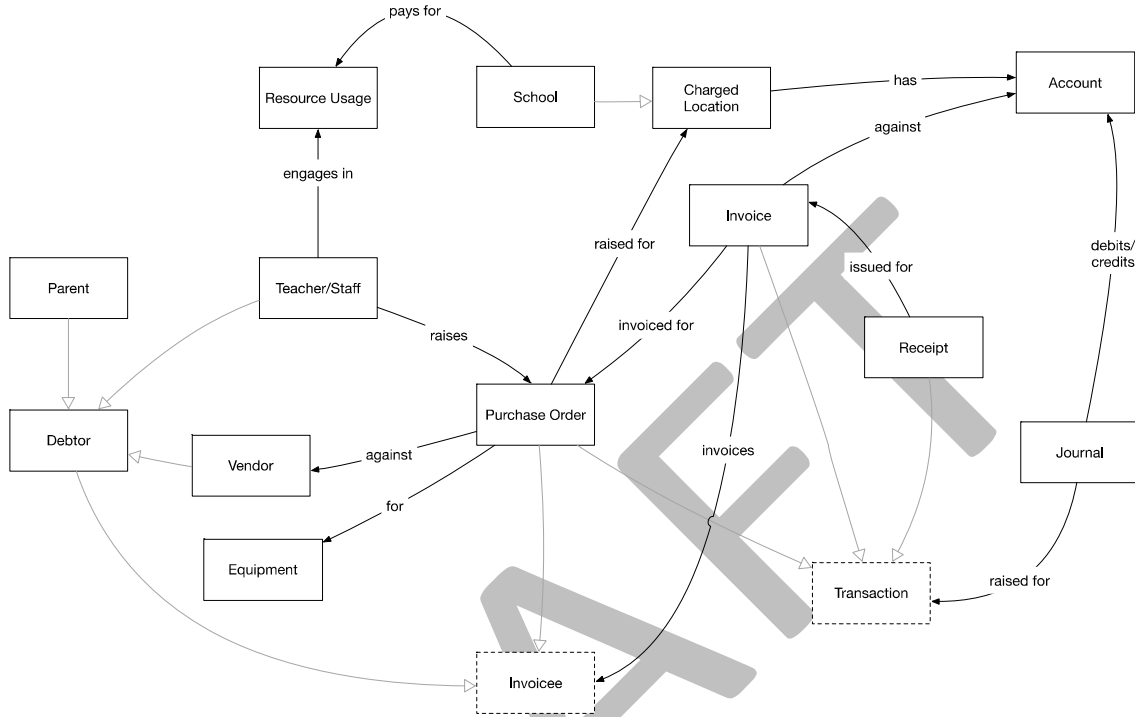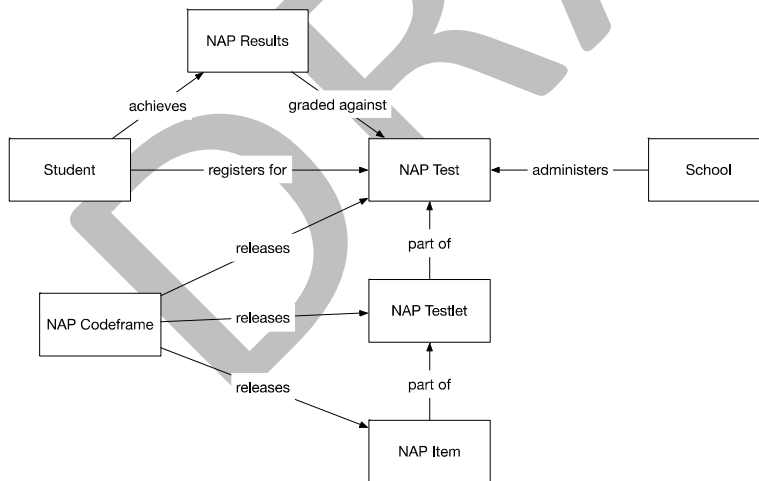
Timetable/Attendance

Finance/Resources

The grey arrows point to superclasses; e.g. Debtor is a superclass of Vendor. The dotted entities, Invoicee and Transaction, are not represented separately in the SIF-AU data model; they are realised through a choice of links to their subclass objects.
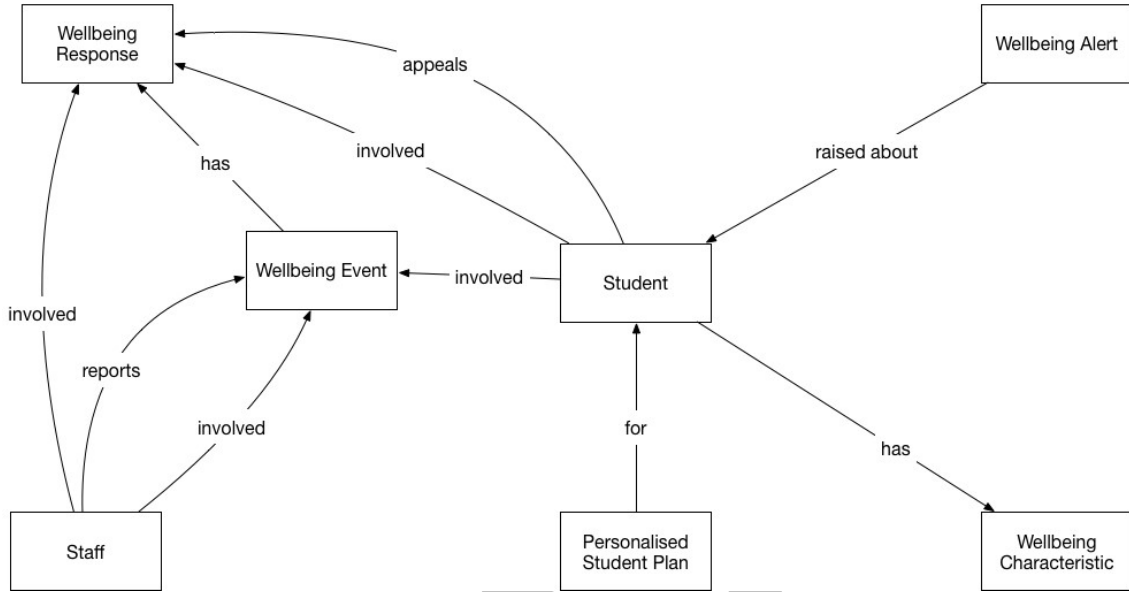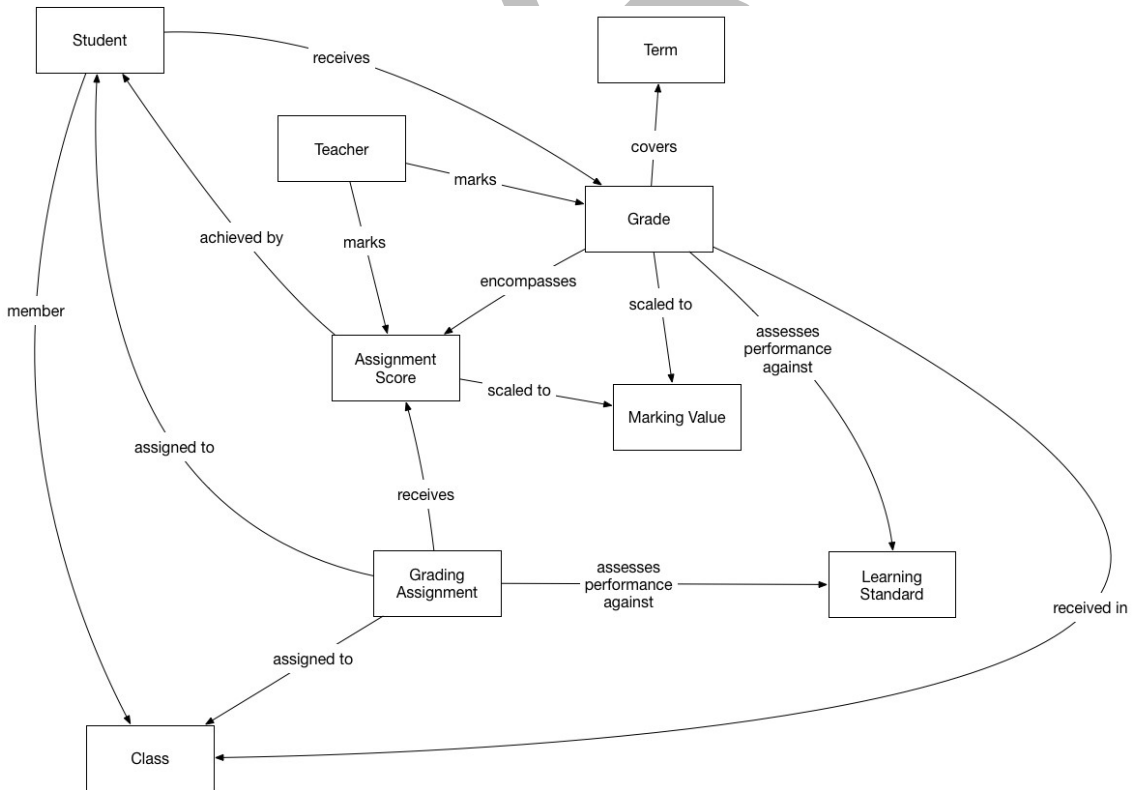

NAPLAN

Wellbeing

The entities in the Wellbeing Usecase are densely interrelated; an Individualised Plan, for example, can draw on all of Behaviour Events, Alerts, and Wellbeing Characteristics. The relations indicated here are not an exhaustive list, and some relations have been left out for clarity.
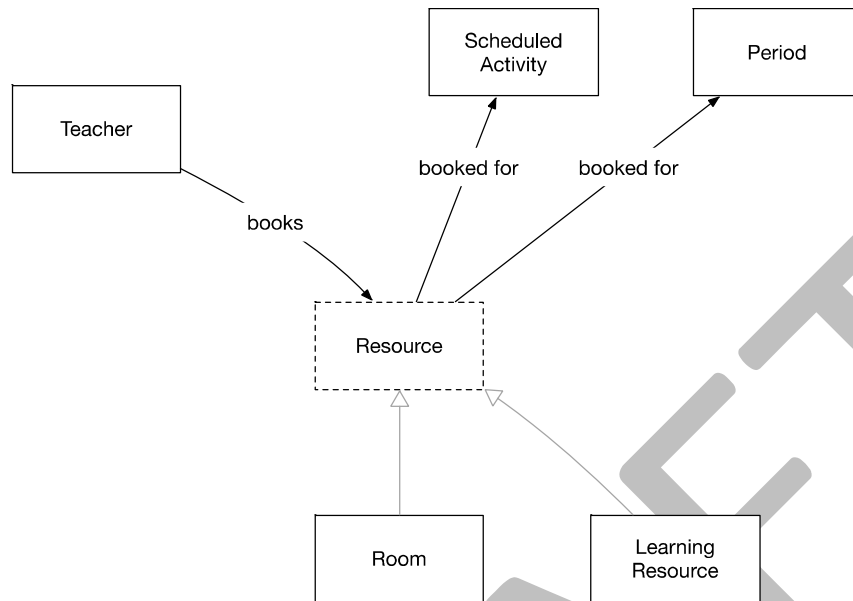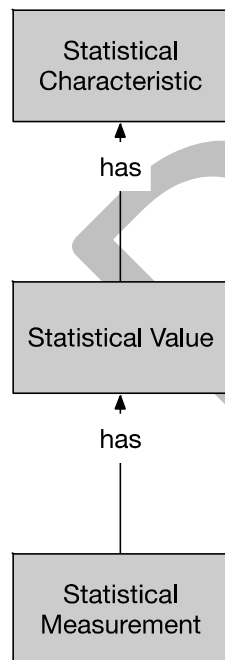

Classroom Assessment

Scheduling

The grey arrows point to superclasses; e.g. Resource is a superclass of Room and Learning Resource. The dotted entity Resource is not represented separately in the SIF-AU data model; it is realised through a choice of links to their subclass objects.
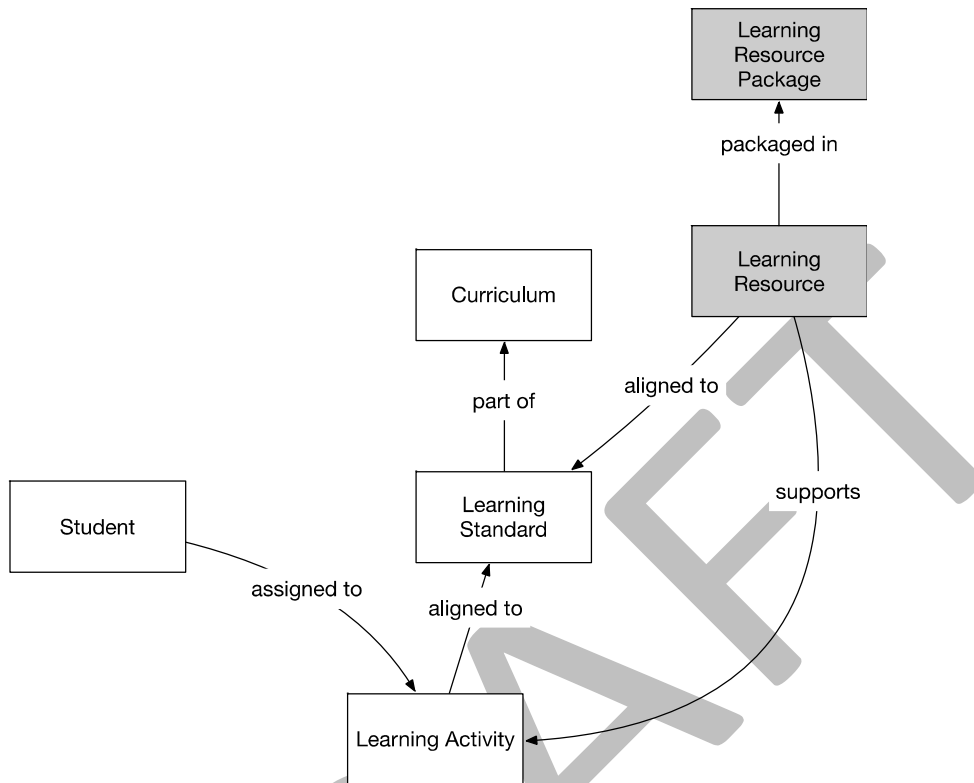

Statistics

The greyed out objects are of secondary importance to the specification, and have been little used to date.

Teaching & Learning

The greyed out objects are of secondary importance to the specification, and have been little used to date.

Mappings of Conceptual Model to SIF data model

Entities

Relations which map to SIF objects are given in lowercase and italicised.

Conceptual	SIF-AU
School	SchoolInfo
Student	StudentPersonal
enrolls	StudentSchoolEnrolment
Teacher	StaffPersonal
assigns role	StaffAssignment
Parent/Student Contact	StudentPersonalContact
relationship with	StudentPersonalRelationship
Class	TeachingGroup; SectionInfo
Calendar	CalendarSummary
Day	CalendarDate
Course	SchoolCourseInfo [relations coded redundantly with Class]
Subject	TimeTableSubject
Education Authority	LEAInfo

Term	TermInfo
Period	TimeTableCell
Room	RoomInfo
TimeTable	TimeTable
Scheduled Activity	ScheduledActivity
attendance marked for	Period: StudentPeriodAttendance; Calendar Day: StudentDailyAttendance, StudentAttendanceTimeList; reporting object: StudentAttendanceSummary
Program	SchoolPrograms
participates	Program: StudentParticipation; Co-Curricular Activity: StudentActivityParticipation
Identity	Identity
role	SystemRole
Picture	PersonPicture
Co-Curricular Activity	StudentActivityInfo
Learning Activity	Activity
Learning Standard	LearningStandardItem
Curriculum	LearningStandardDocument
Learning Resource	LearningResource
Learning Resource Package	Learning Resource Package
Equipment	EquipmentInfo
Resource Usage	ResourceUsage
Statistical Measurement	AggregateStatisticInfo
Statistical Value	AggregateStatisticFact
Statistical Characteristic	AggregateCharacteristic
Vendor	VendorInfo
Purchase Order	PurchaseOrder
Charged Location	ChargedLocation
Debtor	Debtor
Account	FinancialAccount
Journal	Journal
Invoice	Invoice
Receipt	PaymentReceipt
NAP Test	NAPTest
registers for	NAPEventStudentLink
NAP Testlet	NAPTestlet
NAP Item	NAPTestItem
NAP Results	NAPStudentResponseSet, reporting object: NAPTestScoreSummary
NAP Codeframe	NAPCodeFrame
Wellbeing Event	WellbeingEvent
Wellbeing Response	WellbeingResponse
appeals	WellbeingAppeal
Wellbeing Alert	WellbeingAlert
Wellbeing Characteristic	WellbeingCharacteristic

Personalised Student Plan	PersonalisedPlan
Grading Assignment	GradingAssignment
Assignment Score	GradingAssignmentScore
Marking Value	MarkValueInfo
Grade	StudentGrade

Relations

The following maps the relations captured in the conceptual model to sets of SIF-AU objects.

Conceptual	SIF-AU
A Student is enrolled in a School	StudentPersonal, StudentSchoolEnrolment, SchoolInfo
A Teacher is assigned a role in a School	StaffPersonal, StaffAssignment, SchoolInfo
A Parent/Student Contact has a relationship with a Student	StudentContactPersonal, StudentContactRelationship, StudentPersonal
A Student is a member of a Class	StudentPersonal, TeachingGroup; StudentPersonal, StudentSectionEnrollment, SectionInfo
A Teacher teaches/associates with a Class	StaffPersonal, TeachingGroup
A Class delivers a Course	TeachingGroup, SchoolCourseInfo; SectionInfo, SchoolCourseInfo
A Subject is taught within a Class	TeachingGroup, TimeTableSubject
(A Class occurs during a Term)	SectionInfo, TermInfo
A Class is taught in a Room	TeachingGroup, RoomInfo
A Class is taught during a Period	TeachingGroup, TimeTableCell
A School has a Calendar	SchoolInfo, CalendarSummary
A Day belongs to a Calendar	CalendarDate, CalendarSummary
A Course is taught within a School	SchoolCourseInfo, SchoolInfo
A Course is taught during a Term	SchoolCourseInfo, TermInfo
A Subject is part of a Course	TimeTableSubject, SchoolCourseInfo
A Subject is taught within a School	TimeTableSubject, SchoolInfo
A Term is administered by a School	TermInfo, SchoolInfo
A Timetable is administered by a School	TimeTable, SchoolInfo
A Period belongs to a Timetable	TimeTableCell, TimeTable
A Scheduled Activity is scheduled for a Period	ScheduledActivity, TimeTableCell, (SessionInfo)
A Student attends a Scheduled Activity	ScheduledActivity, StudentPersonal
A Teacher attends a Scheduled Activity	ScheduledActivity, StaffPersonal
A Class attends a Scheduled Activity	ScheduledActivity, TeachingGroup
A Student has attendance marked for a Period	StudentPersonal, StudentPeriodAttendance, (TimeTablePeriod = TimeTableCell)
A Student has attendance marked for a Day	StudentPersonal, StudentDailyAttendance, (Date = CalendarDate); StudentPersonal, StudentAttendanceTimeList, (Date = CalendarDate)

A Student is graded on a piece of Curriculum	Forthcoming with ICON update
A Student participates in a Co-Curricular Activity	StudentPersonal, StudentActivityParticipation, StudentActivityInfo
A School belongs to an Education Authority	SchoolInfo, LEAInfo
A School offers a Program	SchoolInfo, SchoolPrograms
A Student participates in a Program	StudentPersonal, StudentParticipation, SchoolPrograms
A Student is a Party	StudentPersonal
A Teacher is a Party	StaffPersonal
A Parent is a Party	StudentContactPersonal
A Party has a Picture	(Party), PersonPicture
A Party asserts an Identity	(Party), identity
A Party has a role on a System	(Party), SystemRole, (System)
A Learning Activity is assigned to a Student	Activity, StudentPersonal
A Learning Activity is aligned to a Learning Standard	Activity, LearningStandardItem
A Learning Resource is aligned to a Learning Standard	LearningResource, LearningStandardItem
A Learning Resource is packaged in a Learning Resource Package	LearningResource, LearningResourcePackage
A Learning Standard is part of a Curriculum	LearningStandardItem, LearningStandardDocument
A Learning Resource supports a Learning Activity	Activity, LearningResource
A Room is a Resource	RoomInfo
An Equipment is a Resource	EquipmentInfo
A Learning Resource is a Resource	LearningResource
A Resource may be booked for a Period	(Resource), ResourceBooking, (Period)
A Resource may be booked for a Scheduled Activity	(Resource), ResourceBooking, ScheduledActivity
A Resource is booked by a Teacher	Resource), ResourceBooking, StaffPersonal
An Assignment is assigned within a Class	GradingAssignment, TeachingGroup
A Student is graded against an Assignment	StudentPersonal, GradingAssignmentScore, GradingAssignment
A Person engages in Resource Usage	(Person), Resource Usage
A School pays for Resource Usage	SchoolInfo, Resource Usage
A Statistical Measurement has a Statistical Value	AggregateStatisticalFact, AggregateStatisticalInfo
A Statistical Value has a Statistical Characteristic	AggregateStatisticalInfo, AggregateCharacteristicInfo
A Teacher (Staff) raises a Purchase Order	StaffPersonal, PurchaseOrder
A Purchase Order is raised against a Vendor	PurchaseOrder, VendorInfo

A Purchase Order is raised for a Charged Location	PurchaseOrder, ChargedLocationInfo
A School is a Charged Location	SchoolInfo, ChargedLocationInfo
A Party is a Debtor	(Party), Debtor
A Vendor is a Debtor	VendorInfo, Debtor
A Charged Location has an Account	ChargedLocationInfo, FinancialAccount
An Invoice is a Transaction	Invoice
A Receipt is a Transaction	PaymentReceipt
A Purchase Order is a Transaction	PurchaseOrder
A Journal processes a Transaction	Journal, Transaction
A Journal debits/credits an Account	Journal,FinancialAccount
A Debtor is an Invoicee	Debtor
A Purchase Order is an Invoicee	Debtor
An Invoice invoices an Invoicee	Invoice, (Invoicee)
An Invoice is invoiced against an Account	Invoice, FinancialAccount
An Invoice is invoiced for a Purchase Order	Invoice, PurchaseOrder
A Receipt is issued for an Invoice	Invoice, PaymentReceipt
A Purchase Order is for Equipment	PurchaseOrder, EquipmentInfo
A Student registers for a NAP Test	StudentPersonal, NAPStudentEventLink, NAPTest
A School administers a NAP Test	StudentPersonal, (SchoolInfo), NAPStudentEventLink, NAPTest
A NAP Testlet is part of a NAP Test	NAPTestlet, NAPTest
A NAP Item is part of a NAP Testlet	NAPTestItem, NAPTestlet
A NAP Codeframe releases NAP Tests	NAPCodeFrame, NAPTest
A NAP Codeframe releases NAP Testlets	NAPCodeFrame, NAPTestlet
A NAP Codeframe releases NAP Test items	NAPCodeFrame, NAPTestItem
A Student achieves a NAP Result	StudentPersonal, NAPStudentResponseSet; NAPTestScoreSummary
NAP Results are graded against a NAP Test	NAPStudentResponseSet, NAPTest; NAPTestScoreSummary
A Student is involved in a Wellbeing Event	StudentPersonal, WellbeingEvent
A Teacher can be involved in a Wellbeing Event	StaffPersonal, WellbeingEvent
A Teacher (Staff) reports a Wellbeing Event	StaffPersonal, WellbeingEvent
A Wellbeing Event has a Wellbeing Response	WellbeingEvent, WellbeingResponse
A Student is involved in a Wellbeing Response	StudentPersonal, WellbeingResponse
A Teacher can be involved in a Wellbeing Response	StaffPersonal, WellbeingResponse

A Wellbeing Response is appealed by a Student	WellbeingResponse, WellbeingAppeal, StudentPersonal
A Wellbeing Alert is raised about a Student	WellbeingAlert, StudentPersonal
A Student has a Wellbeing Characteristic	StudentPersonal, WellbeingCharacteristic
An Individualised Plan is for a Student	PersonalisedPlan, StudentPersonal
An Individualised Plan responds to a Wellbeing Characteristic	WellbeingChracteristic, PersonalisedPlan
An Individualised Plan responds to a Behaviour Event	WellbeingEvent, PersonalisedPlan
A Grading Assignment is assigned to a Class	GradingAssignment, TeachingGroup
A Grading Assigment is assigned to a Student	GradingAssignment, StudentPersonal
A Grading Assignment receives an Assignment Score	GradingAssignmentScore, GradingAssignment
An Assignment Score is achieved by a Student	GradingAssignmentScore, StudentPersonal
An Assignment Score is scaled to a Marking Value	GradingAssignmentScore, MarkValueInfo
A Teacher marks an Assignment Score	GradingAssignmentScore, StaffPersonal
A Grading Assignment assesses performance against a Learning Standard	GradingAssignment, LearningStandardItem
A Student receives a Grade in a Class	StudentGrade, StudentPersonal, TeachingGroup
A Teacher marks a Grade	StudentGrade, StaffPersonal
A Grade covers a Term	StudentGrade, TermInfo
A Grade assesses performance against a Learning Standard	StudentGrade, LearningStandardItem
A Grade is scaled to a Marking Value	StudentGrade, MarkValueInfo
A Grade encompasses Assignment Scores	StudentGrade, GradingAssignmentScore